THE

JOURNAL OF GAS LIGHTING,

WATER SUPPLY, & SANITARY IMPROVEMENT.

VOL. X. No. 225—13th YEAR.] LONDON, JUNE 4, 1861. [Subscription { 15s. in Advance / 18s Credit. } per Ann.] DOUBLE No. Price 1s.

CANNEL COAL.

RAMSAY'S NEWCASTLE CANNEL has become the principal Cannel Coal used in the Metropolis. Its joint products of gas of high illuminating power, and coke of good quality, make it one of the most economical coals known. The Crystal Palace was lighted from it in 1851, and the Post-office, and *Times* Office, are at present.

FIRE-CLAY RETORTS and PIPES.

FIRE-BRICKS (marked "RAMSAY") OF ALL DESCRIPTIONS.

G. H. RAMSAY, Broad-chare, New-castle-on-Tyne. Manufactory established in 1804.

SOWERBY BRIDGE GAS-WORKS. Tenders are invited from competent persons for the erection of one 70 ft. TELESCOPIC GASHOLDER in two 20-ft. lifts, together with the necessary Framework and Fixings; and also, for two SCRUBBERS and CONNECTING-PIPES.

The Drawings and Specification may be seen, and forms of Tender, with the weights, may be obtained after the 29th inst., on application to the consulting engineer, Mr. G. W. STEVENSON, of Halifax; and the Tenders must be sent in on or before Monday, June 10, addressed to the CHAIRMAN of the Gas-Works Committee, and endorsed "Tender for Gasholder, &c."

Sowerby Bridge, May 25, 1861.

TO GAS ENGINEERS.

WANTED, immediately, an ASSISTANT-MANAGER, to proceed to Calcutta, who is thoroughly acquainted with the Manufacture and Distribution of Gas. Age not to exceed 35 years.

Apply by letter, stating age, salary required, whether married or single, to Mr. A. HERSEE, Secretary, the Oriental Gas Company (Limited), 127, Leadenhall Street, LONDON, E.C.

TO GAS COMPANIES AND PROPRIETORS.

WANTED, the entire or partial MANAGEMENT of a Provincial Gas-Work, or LEASE of one; or the Advertiser would advance £500 to £1000 to enlarge any existing Work, and take proportionate profit and share of management.

Address by letter to A. B. B., care of Messrs. CHEVALIER and Co., 12, Bell Yard, Temple Bar, LONDON.

TO GAS COMPANIES.

WANTED, by a Practical Working Stoker, a SITUATION in a small Gas-Work. Understands working Wet or Dry Purifiers, can distribute Gas either with Governor or Slide-Valves; can set retorts, and fit them up, and do all that is required. No objection to go abroad; reasonable wages required; character undeniable.

Address to H. WALKER, 2, Spring Terrace, Vauxhall Walk, SURREY.

WALCOTT'S NEW PATENT RETORT.

ONE-THIRD saved of Furnace Fuel commonly used. A Six or other sized Bed of Retorts can be changed at once into a Three or Two-Bed, &c., when working or down. "*Furnace fed with two currents of* HEATED *air to intensify combustion.*"

The Fire playing on the back and two side walls, also covering arch in common settings, is permeating on larger-sized retorts. An effectual method devised for destroying the incrustation of Carbon inside Retorts. The patent Retorts and Furnaces are more easily repaired than the common settings.

Prices, Plans, &c., from Mr. GEO. WALCOTT, Gas Engineer, 24, Abchurch Lane, LONDON.

Moneyed Partner wished for Working Patent.

COUNTY and General Gas Consumers COMPANY (LIMITED).—Works at Chertsey, Lea Bridge, Northfleet, Pembroke, Pembroke Dock, Ware, and Walton-on-Thames, producing a gas rental of about £6500 per annum.

Established for the erection of gas-works in provincial towns, or the purchase or leasing of existing works on equitable terms. Application to be made to the Engineer to the Company, Mr. H. P. STEPHENSON, 58, PALL MALL.

TO GAS COMPANIES AND CONTRACTORS.

FOR Sale, several lengths of Hydraulic MAIN, 14 inches diameter and 6 feet 9 inches long, with 7 holes for DIP-PIPES.

Also 4-inch ASCENSION-PIPES, and 3-inch ARCH and DIP-PIPES, and RETORT MOUTHPIECES, all in excellent condition, and will be sold at a very low price, and delivered, if required, at any Railway Station in London.

To be seen, on application to the ENGINEER, at the Equitable Gas Company's Works, Lupus Street, PIMLICO.

COWEN'S PATENT FIRE-CLAY RETORTS

JOSEPH COWEN and CO.,
BLAYDON BURN, NEAR NEWCASTLE-ON-TYNE,

Were the only parties to whom a PRIZE MEDAL was awarded at the GREAT EXHIBITION of 1851, for "GAS RETORTS and OTHER OBJECTS in FIRE CLAY."

J. C. and Co. have been for many years the most extensive Manufacturers of Fire-Clay Retorts in the United Kingdom; and orders for Fire-Clay Retorts of all shapes and dimensions, Fire Bricks, and every other article in Fire Clay, are promptly executed at their Works as above.

COWEN'S GARESFIELD COAL AND COKE.
Coal and Coke Office,
QUAY SIDE, NEWCASTLE-ON-TYNE.

FIRST PRIZE IN THE PARIS EXHIBITION.

JOHN RUSSELL AND CO.,
THE OLD TUBE WORKS,
CHURCH HILL, WEDNESBURY;
ALMA WORKS,
WALSALL, STAFFORDSHIRE;
and 69, UPPER THAMES STREET, LONDON,

Original Manufacturers of Wrought-Iron Gas Tubes and Holders of the present Patents; Inventors and First Makers of LAP-WELDED FLUES for Steam Boilers.

J. R. and Co. make all kinds of Tubes and Fittings for Gas, Steam, and Water, and the largest Orders may be executed in a few days.

Gun Metal, and all other kinds of Cocks, Stocks, Dies, and Taps, Galvanised Tubes, &c.

N.B. All Goods thoroughly Tested before sent out, and Warranted.

SHARES IN THE EQUITABLE GASLIGHT COMPANY.

MESSRS. DRIVER have received instructions from the Board of Directors of this company to offer for SALE by Auction at the Mart, on Wednesday, June 26, in Fifty-nine Lots, 437 UNAPPROPRIATED SHARES, of £25 each, in the Equitable Gaslight Company, on which one call of £5 is payable. This Company, incorporated by Act of Parliament in 1842, is now paying a dividend of 10 per cent. These shares for sale constitute the residue of a new issue of 4000 shares, the whole of which, except the 437 now for sale, have been taken up by existing shareholders; the present opportunity is, therefore, a favourable one for the investment of capital.

Printed particulars may be obtained at the Auction Mart; at the Offices of the Company, 21, John Street, Adelphi; of Messrs. J. and C. ROGERS, Solicitors to the Company, Manchester Buildings, Westminster; and of Messrs. DRIVER, surveyors, land agents, and auctioneers, 5, WHITEHALL, S.W.

TO the Benevolent and Humane.— The undersigned, who is 74 years of age, and has been engaged for about 30 years by several of the Metropolitan Gas Companies in the capacity of Inspector, Surveyor of Mains, and Collector, has lost the use of his eyes by Cataract, and must undergo a critical surgical operation, to prepare for which he will have to incur an expense totally beyond his means. He is consequently compelled to appeal to the generous hearts of his former Brother Officers and Superiors to lend him a helping hand in this sad affliction, and to assist him in recovering one of God's greatest blessings. To those Gentlemen who have generously assisted him during the last twelve months, he tenders his most grateful thanks. The Editor of the JOURNAL OF GAS LIGHTING is acquainted with the particulars of the case, and has kindly permitted reference to be made to him; and it is hoped that the young and able will send their mite to assist in alleviating the sufferings of an old Member of the Profession.

JOSEPH WAKEMAN.
No. 2, Upper Johnson St., Holywell St., Westminster, March 5, 1861.

The following subscriptions are gratefully acknowledged:—

Mr. Shepherd, Rome	£1	0	0
Mr. Richards, Barcelona	1	0	0
Mr. Upward, Curtain Road	1	1	0
Mr. Methven, King's Cross	1	0	0
Mr. Evans, Westminster	1	0	0
Mr. Barkworth		10	0
Mr. Pritchard, Kensal Green ..	1	0	0

BLAYDON BURN AND LOW BENWELL FIRE-CLAY RETORT AND FIRE-BRICK WORKS, NEAR NEWCASTLE-ON-TYNE.

WILLIAM COCHRAN CARR begs most respectfully to thank the Metropolitan, Provincial, and Continental Gas Companies for their patronage for several years past, and to intimate that he has rebuilt and enlarged his extensive premises for the Manufacture of CLAY RETORTS; and that he is now prepared to execute the largest orders with punctuality and despatch. Orders for FIRE-CLAY RETORTS, of all shapes and sizes, FIRE-BRICKS, and all other Articles in Fire-Clay, executed on the shortest notice, and on the most reasonable terms.

London Agents:
JAMES LAWRIE & CO.,
63, OLD BROAD STREET, CITY, LONDON.

TO BE SOLD, a Second-hand GASHOLDER, in good condition, 40 ft. by 12 ft. Counterbalanced at three points with 6-inch Inlet and Outlet-Pipes and Valves complete.

For price and further particulars, apply to Mr. HUNTER JONES, Gas-Works, NORTHAMPTON.

COAL TAR.

TO BE LET—the Tar produced at the Works of the SUNDERLAND GAS COMPANY from the 1st of July next. Quantity from 150,000 to 200,000 gallons per annum.

The Directors will receive Tenders until the 28th instant.

J. H. COX, Secretary.
Sunderland, May, 1861.

FOR SALE, Four Purifiers, each 4 ft. square by 3ft. 6 in. deep, with Central Valve, and 5-inch Connexions.

Also, 4 lengths cast-iron Hydraulic Main, 15 in. diameter, 20 4-inch H pipes, and 12 D Mouthpieces.

Apply to THOMAS H. METHVEN, Gas-Works, BURY ST. EDMUNDS.

WANTED, a permanent Situation as FITTER AND METER REPAIRER, or WATER FITTER. Well accustomed to Service and Main laying, or the management of a small gas-work. Good testimonials can be produced.

Address, Y. Z., Post-Office, WINDSOR.

WANTED, by the Advertiser, a Situation as MANAGER of a country Gas-Work. Is thoroughly qualified by long, practical experience for the situation.

References and Testimonials as to character and abilities.

Address, P. O., care of Mr. KING, 11, Bolt Court, Fleet Street, LONDON, E.C.

BELGIAN CLAY RETORTS.

ALBERT KELLER, Ghent.—The removal of the import duties on Earthenware permitting the entry of Clay Retorts into England, Albert Keller, of Ghent, begs to draw the attention of the Gas Companies of London, and other Cities, to the very superior quality of the RETORTS manufactured by him. They can be made of any size, in one piece, and of any form. The price will be in proportion to the weight, and very moderate in comparison to their value.

Communiations, addressed to ALBERT KELLER GHENT, will receive immediate attention.

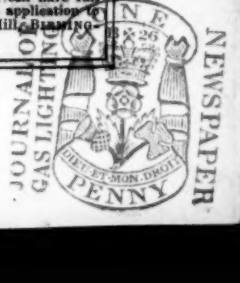
LESLIE'S PATENTS: Gas and Coke from common Coal, greatly increased in value.—60, Conduit Street, LONDON, W.

LESLIE'S PATENTS: Up to Forty Candle Gas.—60, Conduit Street, LONDON, W.

LESLIE'S PATENTS: Licenses for England, Scotland, and Ireland, the 86 Departments of France and Belgium.—60, Conduit Street, LONDON, W.

LESLIE'S PATENTS: The National Waste Heaps at Collieries UTILISED for Gas purposes.—60, Conduit Street, LONDON, W.

CLAY Purification of Gas, whereby a total removal of AMMONIA is effected, may now be carried out by all Gas Companies, and made a SOURCE OF CONSIDERABLE PROFIT. Any Gas Company wishing to adopt the process, can have full particulars as to use of patent, &c., on application to ALEX. SIMPSON, Steam Mills, Snow Hill, BIRMINGHAM.



THREE
MEDALS AWARDED TO
THOMAS GLOVER'S
PATENT DRY GAS-METERS.

LORD REDESDALE'S "SALE OF GAS ACT."

DRY METERS *VERSUS* WET METERS.

LONDON, February 25, 1861.

THOMAS GLOVER begs to call the attention of Gas Companies and others to a few *facts*, which, if duly considered, must lead to most important conclusions :—

1. That since THOMAS GLOVER commenced to manufacture his Patent Dry Gas-Meters (which is now upwards of 15 years), every Wet Meter Maker of any importance in England has been compelled to manufacture Dry Gas-Meters ; and in the JOURNAL OF GAS LIGHTING, of date of 12th of February, 1861, Messrs. William Parkinson and Co., successors to the late Samuel Crossley, advertise that they "intend manufacturing *Dry* as well as" Wet Meters, and it is worthy of particular notice that they intend to do so "after 40 years experience in manufacturing Wet Gas-Meters of such a quality that has enabled them, as they say, to maintain a superiority over all other ; and this, be it also particularly noticed, after they had advertised in the JOURNAL OF GAS LIGHTING, January 29, 1861, "their improved low-spouted Gas-Meter with new patent float arrangement, which entirely overcomes the difficulty experienced by ordinary Wet Meter."

2. That it is quite consistent with THOMAS GLOVER'S knowledge that Wet Gas-Meters, called "low-spouted" or "compensating Wet Meters," have already been proved to be incapable of continuous working or registration, and for this reason the manufacturers of these Meters have been induced to seek the repeal of Lord Redesdale's (righteous) Sale of Gas Act.

3. That every year the Patent Dry Gas-Meter manufactured by THOMAS GLOVER has risen in favour with Gas Companies and Gas Consumers, placing him in the proud position of being the largest manufacturer of Gas-Meters in the country.

THOMAS GLOVER guarantees his Patent Dry Gas-Meters to meet all the requirements of the "Sale of Gas Act," to give accurate and unvarying registration with steady lights ; and, from their peculiar construction, cannot be tampered with, and may be fixed in open situations even above or below the level of the lights. They work with less pressure than Wet Meters, and are not affected by the most severe frost.

THOMAS GLOVER guarantees to uphold all Meters sold by him for 5 years free of expense to the purchaser, or for a trifling per centage per annum will contract with any Gas Company to uphold their Meters of his manufacture for a series of years ; and, at the conclusion of such contract, to lease the Meters all in perfect working order.

N. B.—Agents in several parts of England are wanted. Apply by letter, or personally.

WILLIAM PARKINSON AND CO.

(SUCCESSORS TO SAMUEL CROSLEY),

PATENT WET AND DRY GAS-METER MANUFACTURERS, &c.

COTTAGE LANE, CITY ROAD, LONDON, E.C.

Established 1816.

PATENT IMPROVED WET METER.

W. P. and Co. invite especial attention to this Meter, which entirely overcomes the difficulty to which ordinary Wet Meters are subjected, owing to the short range of the Float, which is necessary, in order to meet the requirements of the Sale of Gas Act.

"It is well known that in Meters constructed so that the valve will close when the water is drawn off to such a point as to render them 3 per cent. slow the lights are liable to be extinguished by the closing of the valve by a sudden increase of pressure. To meet this difficulty, Mr. Pinchbeck has invented an ingenious and simple arrangement by which the action is reversed, and any such increase of pressure, in his Meter, raises the value instead of depressing it. The fact of the improvement having been adopted by Messrs. W. Parkinson and Co. is a sufficient guarantee that it practically and effectually remedies the inconvenience it is designed to meet."—JOURNAL OF GAS LIGHTING.

IMPROVED DRY METER,

Which W. P. and Co. pledge themselves to manufacture with the same quality of materials and workmanship as in their Wet Meter, thereby giving Gas Companies and others the advantage of procuring a first-rate Dry as well as a Wet Meter, which, hitherto, they have been unable to do.

STATION-METERS AND GOVERNORS,

Which can be seen at all the London Gas-Works. Also Liverpool, Manchester, Sheffield, Nottingham, Belfast, Glasgow, Birmingham, Dublin, Bristol, Leeds, Leicester, Brighton, Southampton, Sunderland, Wolverhampton, Bradford, Norwich, &c., &c.

TEST GASHOLDERS, EXPERIMENTAL METERS, EXHAUSTER REGULATORS,

MINUTE CLOCKS, PRESSURE GAUGES, PHOTOMETERS, PRESSURE REGISTERS, &c.

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NOTICES.

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The next number will be published on Tuesday, June 18, and the subsequent numbers on each successive alternate Tuesday.

Stamped copies, when forwarded by post, must be folded so as to expose the stamp; they are otherwise liable to the full postage charge for letters.

This JOURNAL has been duly registered at the General Post Office for transmission abroad.

All Communications to be addressed to the Editor, No. 42, Parliament Street, Westminster; and orders for Advertisements to the Publisher, Mr. W. B. King, No. 11, Bolt Court, Fleet Street.

THE JOURNAL OF GAS LIGHTING, WATER SUPPLY, & SANITARY IMPROVEMENT.

TUESDAY, JUNE 4, 1861.

NOTES UPON PASSING EVENTS.

THE May numbers of the *Presse Scientifique des Deux Mondes* afford us a few gleanings which are not without interest. The question of the national value of patent rights has recently been discussed in Paris by an assembly of merchants and manufacturers, and men of science. The proposition was to abolish patents, and replace them by payments through the Government, in proportion to the value of each invention—an obviously impracticable idea. Another was to establish a tribunal of competent men, such as engineers, chemists, and manufacturers. Perhaps, a sort of special jury list of this character would be of use to our judges. The case of Daguerre, who received an annuity of £240 a year, on condition that he made his photographic discoveries public property, was cited in favour of the abolition of patent rights; but there were several dissentients from this opinion. There can be no doubt that the patent of invention system has its disadvantages. There are mechanical inventions, which, after a time, become seriously impeded by a network of unused or partially used patent improvements. The centrifugal dyeing plan is one instance in point. If you contemplate improvements in the manufacture of candles, you are hedged out by a candle company bristling with patents. If you turn to the permanent way of railroads and its adjuncts, you meet the same obstacle. As for telegraphy, it occupies patent parchment enough to wrap up the Atlantic cable. But, after long consideration, we come to the conclusion that the balance of advantage is in favour of our reformed English system, which enables native or foreigner, without distinction, at small cost, to secure the benefit of priority of invention; and which also encourages the abandonment of privileges which the world seems disinclined to patronize. What we most need is a compulsory tribunal for arbitrating on the value of part of an invention, so as to enable a manufacturer to combine the best parts of several inventions, or one patentee to use for a fair consideration the part of an unused patent. Steam cultivation is at the present time much retarded by a volume of unused patents. Railroad companies can take land by force, on paying an ample compensation. Why should not the public have the right to purchase the use of improvements which happen to belong to a dog in the manger of a patentee?

What should we say in London, if the corporation or the Metropolitan Board imposed a tax on the mudlarks of the Thames?—yet such is the rule in Paris. Metal-washing is a trade on the Seine, just as gold-washing is in California; and an inquiring philosopher found that a man, whom he had often observed at work with a sort of cradle, on the left bank of the Seine, was washing for bits of iron, copper, and zinc, with now and then a lucky prize of silver coin, or even gold, under a licence from the municipality of Paris, and he made from 2s. 6d. to 3s. in one day, but did not work regularly—choosing, no doubt, the time when floods of rain well washed the streets.

A decree of the Emperor allotted 40 million francs as a loan to be used in enabling the manufacturers to improve their machinery, and thus assist them in preparing to compete under the new treaty of commerce with England. Between the 5th of December, 1860, and the 20th of January, 1861, more than 500 applications were made, representing a sum of more than 3 millions sterling. After an attentive examination, the commissioners reported in favour of 200 loans, for upwards of a million and a half sterling, and rejecting 272 applications. The loans granted were as shown in the following table:—

		Francs.
27	iron and metals	9,110,000
88	thread and textiles	15,060,000
5	means of conveyance	7,200,000
11	mines	3,800,000
18	machinery	1,417,000
6	sugar factories	3,250,000
45	paper and miscellaneous manufactures	458,000
200		

Out of the 200 loans, 162 are to be secured by mortgage or hypothecation; as to 38 loans, representing 5,400,000 francs, the commission will be satisfied with personal security. Each loan will be repaid in thirds, and the due employment of each instalment must be satisfactorily proved, before the second and third are paid. The commissioners recommend that the term of these loans shall in no case exceed twelve years, and, in most cases, be repaid in ten annual payments, including interest. The French Government have, in the *préfets* and their sub-officers, machinery for carrying out all the arrangements of these advances, including the repayments—which is fortunately entirely wanting in this country.

A long article in the *Presse Scientifique* is devoted to the merits of the arbutus, or strawberry-tree, which flourishes in the west of England, in the latitude of Clifton, and down into Cornwall, but is not valued for its fruit, except by gipsies. M. Mingaud recommends the arbutus to the serious attention of parties interested in planting mountains and arid plains in suitable climates. He even compares its value, as food-value, to the potato. The leaves of the arbutus he assures us may be used for tanning, instead of oak-bark. The fruit he considers excellent as preserved, or as jelly; but most valuable for making excellent white sparkling wine, good "vin ordinaire," brandy, and spirits of wine. "A good deal of arbutus spirit has been purchased by the merchants of Nantes, and sold at the same price as *kirch*."

The climate of England affords no encouragement for such speculations, unless in the West it may take the place of elderberry wine. But there may be English colonies where the cultivation of this beautiful shrub may be profitable. It is in common use in the mountain region of Cevennes. In our Notes of March 12, we gave an extract from a discussion by a scientific society, in which it was maintained that the English were removed but by a very few generations from savages, and still bore in their features traces of their barbarous origin. This was a severe slap to those who pride themselves on the good looks of the British race; but it was bearable, considering that the report appeared in a journal, the editor of which specially and sincerely applies himself to recording the daily contributions of England to science and the useful arts. A still more extraordinary paper appears in a recent number of the *Presse Scientifique*—a review of "*Les Races Humaines, et leur part dans la Civilisation, par le Dr. Clavel,*" by Dr. Bertillon. Dr. Bertillon would not easily find a hearing here, as he very frankly avows himself an Atheist and a Socialist. He does not, according to our notions, exactly "hold the mirror up to nature." He makes statements and emits opinions which are as strange and horribly curious as the lately-exhibited gorilla. Passing over the most offensive passages of this rhapsody, we come to the notes on Dr. Clavel's descriptions of various races—to which, as a matter of course, no man of the world can object. remembering the fable of the man, the lion, and the sculptor's statue. The French Latin race is placed in the first rank. The indisputable claims of the French for acute intelligence, for courage, for domestic amiability, and the tastes and talents of social life, do not satisfy him; he assumes farther, that "more than any other nation, they have a feeling for 'the true, the just, and the beautiful;'" and asserts that, on the contrary, "the Englishman 'not having the feeling of justice in his heart is obliged to seek it in the text of the law.'" "The Frenchman is irritated by the partiality which appears in the Old Testament." To a true Englishman, "it seems quite natural; and his favourite study is a book which has little influence on populations endowed with a sense of justice." We will not dispute the respective claims of the two countries to an appreciation of the "beautiful;" we shine in the country, in the park, the village, the garden, the villa, and the mansion. Frenchmen in broad streets, fountains, and monuments; we in the beauty of neatness and cleanliness, sweet air and water; the Frenchman, in compounding perfumes, dressing of women, and the arrangement of nosegays; but, as to "truth and justice," we will take strictly professional illustrations. In England alone, the foreigner in courts of justice, or seeking to profit by an invention, or to establish a manufactory, has equal rights with a native-born subject. He has all the advantages of the Frenchman's favourite idea—*equality*; he has what is expressed by a truly English untranslateable phrase, "fair play."

The equality which exists in England, and is not talked about, because it is so much a matter of course, is equality of rights; in France, it means laws for levelling down property, and leaving few powerful, except Government agents. Thus the leading idea of an English constitutional reform, for a century past, has been freedom from police and customs, and excise. The French liberal leading notions are conquest or confiscation, or both. French philosophers, of highly intellectual pretensions, base all their schemes of reform on confiscating at home, and conquering abroad. M. Proudhon, whom Dr. Bertillon terms, in the paper under notice, "the boldest and most profound thinker of modern times," has, in his latest work, proposed to conquer England, confiscate the whole property of the aristocracy, and middle classes, and, after reducing them to the rank of artisans, to bestow, out of their plunder, one hundred and sixty millions sterling on the seven millions of the poorest inhabitants of France—to occupy conquered and disarmed England with a police and army, and to appropriate the rent of the kingdom, let out in farms of twenty acres, to paying the taxes of France, thus rendering the people of that empire the "gayest in the world."

No man has done more justice to the progress of science, and especially of the agricultural science which in England has been founded on our peculiar political system, than the editor of the *Presse Scientifique*, M. Barral; we presume, therefore, that he admits the ravings of such lunatics as Drs. Clavel and Bertillon by way of diversion from his serious investigations, just as Shakspeare's fools appear in, or follow the gravest tragedies. After M. Barral has shown the high degree of comfort enjoyed by the working classes employed and paid by the English capitalists, detested by French socialists, and the magnificent agriculture produced by the hereditary system, Dr. Bertillon appears and tells us that, from the days of the massacres of the French Revolution to the Battle of Solferino, his countrymen "have been battling to establish on earth the reign of justice and leisure," and quotes with applause a long passage from Proudhon's *Philosophie de Rosses* beginning "*Divin Platon, ces dieux que tu rêves n'existent pas—Nous connaissons rien de plus grand, and de plus beau que l'homme!*"

The Thames Embankment Bill has been rejected on the motion of Mr. Cowper, president of the Board of Works: the offer to adjourn the second reading for a month, to give time for the Thames Embankment commissioners to make their report, was officially refused. Therefore, if the commissioners should recommend a plan which might be most economically carried out by a private company acting on the recommendations of the commissioners, we must wait until next session. Looking at the slow and costly progress of the Government in the last two river works it has undertaken—the Pimlico and Westminster Bridges—we cannot hope for very cheap or rapid work, if the Thames Embankment is to be placed in the hands of Mr. Cowper and his successors.

It has, for several years past, been the fashion amongst "old Indians" to sneer at the Ganges Canal, as a failure in everything except acquiring a title for its engineer. It is true that this canal has never been completed. The network of branch canals which would have made the trunk canal most profitable, has been only partially executed. But the last of the famines—to which, by-the-bye, India has from the earliest ages been intermittently subject—has justified even Sir Proby Cautley's work. We learn from a report, drawn up by order of Lord Canning, that the area of cultivation entirely created by the unfinished canal is 600 square miles—sufficient to feed 1½ million of population for a year—to find fodder for their cattle, and produce great exportable crops of sugar and cotton. The canal has also supplied cheap water conveyance, of great value for the transport of food to the famine-struck regions. Within six months, the number of boats plying on the canal has been doubled, and a navigation company is preparing a further supply. As this is a Government work, the returns are of a two-fold kind—first, and least, direct rents; next, increase in the value of the Government's estate, by rendering fertile and rent-paying what would otherwise have been a desert. According to the reporter's calculation, the savings of rent that would otherwise have been lost in the famine will amount to nearly £200,000, and the direct return to £60,000. The canal cost less than £2,000,000 sterling. There are tens of thousands of acres that might be rendered at least equally, if not more, productive by easy works of irrigation. Capital only is needed. It is to be hoped that the successor of Sir Charles Wood will make a reputation by raising the funds required at the low rate of interest which may be secured by a British Government guarantee.

A book on Java, by Mr. Money, has just appeared, to show how an Oriental dependency, a few years ago as poor as India, has been made prosperous and happy, by a plan combining European justice and humanity with Oriental despotism. In Europe, we may govern by the people; in the East, we must govern for them. They love a strong, just despot. The Javanese peasantry are well-paid, well-clad, industrious, and contented. As to labour, "there is no compulsion, but they must." The country is intersected with excellent roads; the transfer of land is easy and cheap; every encouragement is given to Europeans to reclaim and improve the Government estates. The loans the Dutch Government advanced, private capital would find in India, if the other advantages of security—easy conveyance and fixed possession of land—were secured. "The Government expenditure in Java, per head, is double that of India, and yet it leaves a yearly net surplus of one-fourth of the revenue, instead of a yearly deficit."

Statistics are a fashion of the day. We have statistics which are useful, and statistics which are amusing, and statistics which are neither. We commend to the notice of a statistician in want of a subject, the statistics of conveyance and consumption of the Derby Day. One of the most important incidents of metropolitan life deserves a little investigation, and would repay it.

COTTON SUPPLY.

The question of cotton supply, threatened by the intestine war of the North American republicans, is so important that every contribution throwing any light upon it is valuable. From India we hear good news—old traditions and smothering routine have been broken through. The Governor-General has authorized an inspection of the routes between the cotton districts, the railway-stations, and ports of exports. He does not require or intend to wait for the services of first-class engineers. He will be satisfied with any officer of ordinary experience and common sense. "He would like to see each engineer accompanied by a commercial man" interested in the cotton trade. He admits that it is impossible, in the space of a few months, to make amends for the *lâches* of half a century —neither railroad nor metalled road can be improvised—canals take time to plan and dig—but he wisely suggests that there are innumerable instances where very trifling works—temporary bridges, the marking of fords—will enable cotton to be carried down in the native bullock-carts, and, if not, on pack bullocks by what we should call bridle-roads. There are, no doubt, many cases where the removal of a single obstacle, or the execution of a single work, of no great importance, will open a district. At the same, time the Governor-General stimulates the enthusiasm of young engineers by stating his willingness to receive and consider projects for great and permanent reproduction of works. This sounds like business. Verily, the writings and works of Colonel Cotton, the great Indian reformer, have borne fruit. Unfortunately—to use a favourite phrase of a celebrated engineer—"There are moral as well as physical obstacles" which retard development of the cotton districts of India. It is admitted by all who have paid any real attention to the subject, that it is only by the direction of European energy, and the use of European capital, that the agricultural resources of India can be developed. To obtain the co-operation of European settlers with capital, confidence in the Government is essential. It must be certain that those who have sowed will be permitted to reap; that those who have lent will be enabled to enforce repayment. But confidence is a plant of slow growth, and unfortunately, just at the time when it is most important for the interests of this country that a full tide of European enterprise should be directed towards the cotton-producing districts, the Lieutenant-Governor of Bengal —the incarnation of the old Indian Anti-Interloper sect—has achieved a signal victory over the indigo-planters of that province—over the interest which has been developed by European enterprise, without, to say the least, any encouragement from the Government. The policy, open and covert, of the Lieutenant-Governor, has encouraged the peasantry, first, to repudiate their contracts—to refuse to grow or deliver the crops on which they had taken advances; and next, bolder by degrees, to refuse to pay rent, and to endeavour to expel all Europeans. These facts are undoubted. In answer, the sentimental and anti-commercial Lieutenant-Governor relates that he steamed for miles along the banks of a river, crowded with natives, imploring "justice" from him. No doubt, that is quite true; but most of us are old enough to remember when O'Connell also marched through thousands of deluded wretches, who, crawling in the dust before him, cried aloud for "justice!" The superior Government must decide between Mr. Peter Grant, the official O'Connell of Bengal, and the enterprising class—the only class capable of extending our Indian cotton supply.

Two eminently practical contributions to the cotton question are now before us—one by M. John Ninet, in the *Revue des Deux Mondes*, who appears to have visited the principal cotton-producing countries, including Egypt and Algeria; the other, read at the Society of Arts, by Mr. Crawford, M.P., late Governor of Singapore, which was not received with the deference due to the author's experience and ability. M. Ninet, after an introduction, which we pass over, at any rate for the present, commences on the pith of his subject, by noticing that, for the last five years, the cotton supply from every country, except the United States, has remained stationary; that British India has made little increase in production, except in 1857, the average of ten years showing very little variation. Brazil could, he suggests, quintuple its production, had it a sufficient supply of labour; but the attempts to colonize with Swiss and Germans have failed, and, so far, Coolie importation has produced no sensible effect. Egypt has a large tract of cotton-ground, but no labour to spare—a useless army, and the bubble scheme of the Suez Canal, occupy hands that might be profitably employed on the fertile soil. In Asiatic Turkey, Anatolia, and Syria, there are also territories that would grow cotton; but there the want of population and of a safe, stable Government, under which immigration on a large scale might be carried out are, for the present, insuperable obstacles. In the Levant, credit and personal security are both wanting to the agriculturists who might, with them, successfully till an inexhaustible soil. In theory every country, enjoying a temperature not lower than of 70 degrees of Farenheit, can grow cotton, but practically the growth must depend on the cost of production, and will only pay where land and labour are plentiful and cheap. "In Algeria, for instance, the extravagant rewards offered by the French Government excited the colonists to extraordinary exertions. For a time Paris believed, on the sight of specimens of African cotton, that France was about to become independent of the United States. But it was a delusion, like many other delusions of the same character, with which the Parisians are from time to time amused. The selling price did not nearly cover the expenses up to the time of delivery; and this branch of agriculture must be classed with other dreams of the gentlemen who cultivate cotton, pen in hand, in their libraries. "It is well known that the natives of Algeria dislike cultivating the soil, while the Kabyles who do condescend to use the spade expect three times the wages of Egyptian fellahs perfectly versed in cotton cultivation. There are no roads, and the available land in Algeria is very dear. The Maltese are the only white colonists who can stand the heat of the climate. They are skilful and active, but they expect high pay. Finally, the colonists have neither the capital nor the enterprise needed for substituting costly but effective machinery for their rude agricultural implements. Between 1844 and 1855, the exportation reached 1800 bags, of moderate size, chiefly grown in the province of Oran. In 1856, the production diminished; in 1857, there was a great falling off; and there is no doubt but that it is the premium of £800 a year which still keeps up cotton crops in a few fields of Algeria. Capital, an abundant supply of labour, at moderate wages, and irrigated lands, at a cheap rate, are all wanted in that colony. When these essentials are supplied, there may be some hope of Algerian cotton, but these are large demands." "There are no real grounds for anticipating a great increase in the growth of cotton on the shores of the Mediterranean. Egypt is the only country that affords a margin for the increase of its cotton crops, for there is a good deal of arable land, of suitable quality, and irrigation from the Nile is easy. But those who have been cotton planters in that country know well that the fellahs dislike growing cotton, because it requires more labour than cereals; and, besides that, if it were possible to sow more cotton seed, it would be impossible to gather in the harvest, because the number of children available for gathering has been so much reduced that even at present one-twentieth of the crops are left to spoil, plants either dried up on the shrubs, or wasted on the damp soil. For ten years, the average production of Egypt has never exceeded a certain maximum. Whenever an extra quantity has been supplied by America, then cereals became the staple export. The fellahs are essentially an agricultural race, with few wants. Let them once acquire a taste for what we consider the necessaries of life, and the cheap labour, on which the cotton growth of Egypt depends, will disappear.

The Ottoman Archipelago may furnish a few hundred bags of cotton. The west coast of Africa is the subject of a great deal of writing, but it has produced very little cotton as yet; and, although worth cultivating, it must be many years before the supply can, under the most favourable circumstances, become of any commercial importance. Hopes are held out of cotton from Natal; but the Kaffirs are not to be depended upon as regular labourers. They are more independent, and less industrious than fellahs and negroes. There is plenty of water in Natal, but the country is too hilly to render irrigation on a great scale possible; besides, there are neither roads nor

bridges." "India," says M. Ninet, "especially the Presidencies of Madras and Bombay, Surat, the provinces nearest the Himalayas, and Scinde, are the true sources from which England and the manufacturing world may expect to draw a regular supply of the raw material for cotton manufacturers." "The population of these provinces very much resemble the fellahs of Egypt—they are purely agricultural; sun, water supply, and a fertile soil, are ready for the use of cheap industrious labour." Cotton of an inferior quality grows freely at present; what is exported to Europe is only the surplus over and above the quantity consumed in native manufactures. The French author thinks that not only the manner of gathering might be improved, so as to deliver it in a clean condition, free from leaves and other impurities, but that the fine American kinds might be produced and perpetuated. This is doubtful. Well-informed settlers say that, after a brief time, the produce of American seed deteriorates. No matter: quantity, of any quality, would be better than a dearth of raw material. M. Ninet goes on to say—probably from personal experience—that, although capital will not be wanting for experiments in Indian cotton cultivation, English companies are too apt to reject the assistance of experienced foreigners, and to intrust their undertaking to agents without any special qualifications, who pretend to manage the business under regulations prepared in London, by some obscure lawyer. This may have been true in M. Ninet's case. The hit at the lawyers is very fair; but, as a general rule, there is no country, except Russia, where foreigners of capacity are so freely employed and trusted as in England.

M. Ninet draws particular attention to Scinde, which has, he asserts, the same climate as Egypt, a soil as fertile as the Delta of that country, enriched like the Delta by annual overflows of the Hindus; while "the population of Scinde is as laborious and intelligent as the fellahs of the Valley of the Nile;" the great drawback being the frequency and inopportuneness of these overflows. It seems that when Sir Bartle Frere had charge of Scinde in 1856, he sent Captain M. F—, of the Bombay engineers, to Cairo, to study the Egyptian system of irrigation; and he there made the acquaintance, and was accompanied on his explorations by the author of the article from which we are quoting. Captain F.'s inquiries convinced him that the cotton-producing qualifications of Scinde had not been over-estimated. Mr. Frere's reports were laid before the great Lancashire manufacturers, but were received with the disdain characteristic of ignorant prosperity. They did not care to look beyond the docks and warehouses of Liverpool—quite satisfied that the Slave States of America would never cease to furnish an endless supply of the foundation of their wealth. "Mr. Frere's recommendations were all *bosh*, and his fears of American failure all nonsense." But times have changed, and the Manchester school, humbled by anxiety, may now condescend to learn something from gentlemen not bred in the mill and the counting-house.

M. Ninet gives a sketch of a prospectus for the cultivation of cotton in India, founded on a plan successfully pursued in Egypt. "An Indian cotton-cultivating company, to be formed with the following objects—advances to the ryots in money, livestock, seeds, and machinery; the construction and improvement of irrigation works; distribution of water by fixed pumps, or pumps floating in boats, and moved from place to place as required; cultivation in shares with the ryots, according to the plan pursued in Egypt on all Government lands; the establishment of brands at the cotton-pressing machine-houses, showing the origin of each bag; the division of each village, of 1000 acres at least, into four groups, under the charge of native chiefs, intrusted with the whole responsibility and arrangements of details; these chiefs to be paid by a per centage on our produce." M. Ninet was not aware, when he penned this project, that schemes for irrigation and the improvement of roads were largely occupying the Indian Government.

M. Ninet slightly refers to the prospect of obtaining cotton from Australia, and dismisses that region as wanting in labour. We look on schemes for growing cotton in Australia as amongst the wildest delusions of trade. At a recent meeting of the Geographical Society, after a number of fine speeches had been made, an anonymous stranger in a few words exposed the folly of the great men who had preceded him. He came from Queensland, and asked how cotton was to be grown and gathered in a country where the wages of a shepherd and his wife were £70 a year, and the labour of the man chiefly consisted in smoking while he watched his sheep? To India we must turn our earnest attention, and leave other uncultivated countries for the amusement of amateur philanthropists.

Mr. Crawford, travelling over the same ground, differed from M. Ninet, only in taking a desponding view of the capabilities of India, and a hopeful view of the supplies of America, but these opinions did not prevent him from making suggestions of the highest practical value for increasing the cotton supply of India. Mr. Crawford furnished the latest statistics of our cotton imports. In 1860, the Southern States of America supplied 10 million hundred weight of cotton, worth more than 30 millions sterling, being 78 parts in 100 of quantity, and 81 in 100 of the value of our whole supply. The extent of land capable of growing cotton in the United States has been computed at 39 million acres, or above 60,000 square miles, some 10,000 more than the area of England and Wales. Of this extent, it was computed that, in 1859, a sixth part only was under cultivation. The first considerable importation of Indian cotton took place in 1788, and the first importation from America in 1792. The cultivator of "America is an educated capitalist, owner in fee of the land he tills, paying no rent and no taxes to the imposition of which he has not been a party. The Indian cultivator is an untaught peasant, the mere occupant of the land he tills, so long as he pays the rent and taxes exacted of him. He borrows his capital at 50 per cent. interest, and mortgages his future crops to pay the interest in kind. The Indian ryot cultivates with a pair or two of puny oxen; a hoe, worth 1s.; a harrow, 2s.; and a plough worth, perhaps, as much as 4s.; in the manner his forefathers have cultivated without change, from generation to generation, beyond the reach of history." "In America, the land is carefully tilled in raised beds. The seed sown in drills, the plants being thinned out so as to leave a space of 18 inches longitudinally between each plant, with a space of 4 feet between each drill for the convenience of hoeing, thinning, pruning, and weeding. In India, the seed is sown broadcast frequently along with another crop. In America, the same seed is not persevered in for above five or six consecutive years, but fresh seed is brought even from as far as Mexico and Peru. In India, the same seed has been sown on the same lands time out of mind." "In America, the cotton plant rises to the height of 6 or 8 feet; in India, to not more than half that height." An ordinary American saw-gin for cleaning fine sea Island will produce 300lbs. of clean cotton in a day, while the Indian machine will hardly yield 3lb. a day." In America, the cotton is conveyed to numerous ports of shipment by river steam-boats, or by railway, or, if on common roads in well-covered waggons. The cotton of Berar, in the centre of India, has to be conveyed on bullocks backs a land journey of 400 miles to Bombay, or 400 of land and 500 of river transport, to Calcutta. Every day, in a journey of at least 40 days, the bullocks are loaded and unloaded, the bales being left, at each resting-place, on the naked earth, exposed to the wind and rain." There are other difficulties. "The existing state of society in India is eminently unfavourable to Europeans engaging in purely agricultural pursuits. There are obstacles in the imperfect administration of justice. The notoriously bad administration of police, the complexity of titles to land, and native roguery." In the districts in which cotton would be most advantageously grown, there is no land to buy, high and fluctuating taxation having deprived it of its saleable value. There are no European settlers in the cotton districts, nor are there likely to be any until they can possess the fee simple of the land they desire to cultivate—until they are protected by law and only liable to fixed and moderate taxation." It will be seen from these extracts, that Mr. Crawford has, from personal knowledge, marshalled all the difficulties that lie in the way of obtaining a full supply of cotton from India; and, in that alone, rendered good service to our manufacturers. As long as America continues to furnish a constantly increasing supply, it is to the highest degree improbable that capital will be directed in any considerable amount to growing cotton in India, or elsewhere. But, if the dark storm now looming in the horizon should burst over the Slave States of America, then, necessity will do what sentimental philanthropy, or patriotism, never did or could; and, we have learned from Mr. Crawford, what can be done to facilitate and improve cultivation in India with the means at our disposal. He points, as peculiarly adapted for cotton cultivation, to "newly-acquired territories on the eastern side of the Bay of Bengal, including Arracan, Pegu, and Martaban. These embrace 4 degrees of latitude, extending

from the 16th to the 20th degree, and contain an area of 64,450 square miles, or larger than England and Wales by, at least, 10,000 miles. The population ranges from 8 to 50 inhabitants per square mile, or not one-twentieth part of the average density of the population of Lower Bengal. The country is watered by an extensive network of rivers open to boat navigation, and the coast has, at least, four safe harbours, to which there is inland communication by water. The greater portion is a rich, alluvial plain, producing the largest part of the rice exported from British India under the name of Bengal." "The unoccupied land must be large, as the population is so thin; and there ought to be no more difficulty in an Englishman's obtaining the fee simple than if it were in Canada or Australia." If the docile local population were not found sufficient for the requisite labour, the exuberant population of India would be close at hand to make up the supply. Periodical rains of great severity extend from April to September. "During this period, a rice crop could be sown and grown on the land, which might be succeeded in the drier months by a cotton crop; thus giving a rice crop and a cotton crop within the year." Mr. Crawford resided some time in the district he described. It will be seen that, although he was more sanguine of the continuance of full exports from the Slave States of America than recent warlike accounts from that country would seem to justify, he has clearly pointed out what may best be done to develop cotton cultivation in India, he has directed attention to a before little-noticed territory, and shown the urgent need of British capital for free land, a rational system of taxation, improved means of conveyance, and improved modes of cultivation. There was very little in the speeches of the gentlemen who followed Mr. Crawford worth notice. The speakers had each much faith to exhibit, but few facts to relate—in countries without population, government, or any of the appliances of agricultural life. It was satisfactory to learn that an improved cotton-gin, to be worked by hand or animal power, had so rapidly grown in favour among the Indian ryots, that the Government factory was unable to supply the demand, and "quite a rush of natives came, money in hand, to enter their names for orders on England." Mr. W. Hawes stated that, in the territories of the Imaum of Muscat, the cotton plant was indigenous, a large tract of land available, and labour plentiful." Mr. Henry Ashworth, a cotton manufacturer, mentioned that, out of 560,000 bales of cotton imported from India last year, only 173,000 had been used—"the greater part of the rest was mere rubbish," and had been exported to the Continent. Mr. Remington, a Bombay merchant of seventeen years standing, said that Indian cotton was not sent to market dirty, now! It was of beautiful quality, but he believed the growth, which was dependent for its character on the soil, could not be materially improved. He did not think it would be possible to increase the import of cotton from India with a less price than 5d. per lb. in Liverpool. Mr. Bazley, M.P., and Sir John Pakington, were both enthusiastic about growing cotton in Queensland, with Chinese labour. We have already given our reasons for considering the project Utopian as regards the present generation. No doubt, in Queensland, any project for turning European capital, in any shape, into the colony, will be received with favour. But, if ten thousand Coolies could be imported, and set to work, what security is there that they would not re-migrate to join their numerous countrymen at the gold-fields? The chairman, Sir Kay Shuttleworth, in summing up the discussion, used the stock clap-trap of his school—talked of the opposition of engineers and men of science to the first locomotive, and the first trans-Atlantic steamer. It is absurd to compare difficulties which were solved by mechanical genius, to difficulties presented by soil, climate, distance, want of civilized government or misgovernment, want of conveyance of labour, of tools, and of capital! There can be no doubt but that we shall get a cotton supply, if the American export should fail; the question to be solved is, in how long a time. Must we have a cotton famine, first? Mere declamation, mere hopeful expectations, and vague talk about Africa, East or West, or Queensland, will not fill one ship. To those who are in earnest, our condensation of trustworthy evidence must be valuable.

Circular to Gas Companies.

THE hopes that were entertained that a bill would be passed this session for the amendment of the Sales of Gas Act, have been frustrated by intrigue, by unfulfilled promises, and by opposition in quarters where support had been fully relied on.

The Under-Secretary of the Home Office promised the deputation which waited on him on the 4th of May, a favourable consideration of the bill for the amendment of the Act, which they submitted to him, provided it were not opposed by the metropolitan gas companies. Within forty-eight hours of that promise, Mr. George Glover, who is now described as "of the Exchequer Office," was actively at work to prevent its fulfilment. It is now well known that Lord Redesdale's Act was drawn up in the interest of the dry meter makers, and, of course, it is their object that it should come into operation unaltered. Accordingly, Mr. George Glover has been exerting such influence as his *quasi*-official position gives him, to support the cause in which his brother (whose agent he recently was) is deeply interested. He succeeded in obtaining from the deputy-governor of the Imperial Gas Company the expression of an opinion that "the Sales of Gas Act is a well-considered measure, prepared by experienced persons with much care; that it is desirable it should be fairly tested, and not be altered without a trial; that the gas companies of London reluctantly conceded 1 per cent variation in the meter as against themselves to satisfy the public and secure peace; but that, if the question of variation were again opened, the companies would contend that the variation, from absolute accuracy, should be the same to the consumer as to the seller, as it appeared contrary to the first principles of justice that greater advantage should be given to one than to the other." Armed with this opinion, which was not intended for publication, Mr. G. Glover caused a circular to be addressed to the secretaries of the metropolitan gas companies, inclosing a copy of the opinion thus obtained, and inquiring whether they agreed to the suggestion of the provincial gas companies that a wider margin should be allowed for variation against the companies; such margin being extended to 5 per cent? The intention was evidently to mislead the metropolitan companies into a belief that the communication proceeded from the Home Office. Fortunately, that intrigue was detected; and it is doubtful whether a single company fell into the trap laid for them, or whether Mr. G. Glover, "of the Exchequer Office," was able to submit to the proper quarter any confirmation of the individual opinion which he expected by this process to obtain. Nor should the authority of the Imperial Company, even had it been expressed officially, and in a straightforward manner, have much weight in the determination of this question, considering that the amount of capital they have invested in meters is very small compared with that of most other metropolitan gas companies.

The bill submitted to the Home Office by the deputation on the 4th ult., afterwards underwent alterations to remove objections that were raised to it; and, in its altered form, it received the assent of six of the principal metropolitan companies. But, nothwithstanding this sanction of the bill, and the innumerable petitions that have been presented to Parliament for the amendment of the Act, the Home Office has suffered itself to be guided by the influence that has been surreptitiously brought to bear on it; and the Government has not only refused to bring in a bill, to prevent the inconvenience and injustice that must arise from the operation of the Act in its present state, but we are informed that intimation has been given that it will oppose all attempts to amend the Act during the present session.

It is acknowledged that the bill submitted to the Home Office was a very incomplete measure, it being intended only to avert some of the principal evils which, it is evident, will arise from the operation of the Act in its present form. It consisted of five clauses. The first of these clauses rendered it legal to use meters that might, by the abstraction of water, be made to register against the seller, provided he gave his consent to their use. The second clause prescribed a more severe test for ascertaining the soundness of the internal parts of meters by directing that they should be tested when passing gas, or atmospheric air, at the rate of only one-tenth the quantity of the nominal measuring capacity. The third clause provided for the appointment of inspectors of meters in Middlesex and Surrey by the president of the Board of Trade, in case the magistrates of those counties should neglect or

refuse to appoint such officers within one month after the passing of the Act. The fourth clause entitled the seller of gas, to recover from the consumers for the quantity actually passed through the meters, though they might not have been previously stamped, according to the requirements of the Act. The last clause merely repealed the seventeenth section of the Act.

These proposed amendments to the Sales of Gas Act would unquestionably have removed many serious obstacles to its practical efficiency, and have prevented the perpetration of much possible injustice. It is true that when the Act, in its present crude state, has been tried for a few months, and its imperfections have been practically experienced, a more complete plan of amendment may be adopted; but, in the mean time, gas companies may be unable to collect their rentals, the public may be inconvenienced by the extinguishing of the lights, and the meter makers may be half ruined, and all because the agents and partisans of an instrument which Mr. Clive, the under-secretary, in his communications with the parties who have interested themselves in the matter admitted to be an imperfect one, have got into office, and are determined to force gas companies to purchase it. We do not believe, however, that the gas companies will act on such compulsion, and the intrigue will most probably result in the discomfiture of its promoters.

While Mr. George Glover has been intriguing to prevent any amendment in the Sales of Gas Act, his friend Mr. Taunton, the inspector appointed under it by the corporation of the City of London, has been similarly occupied to prevent the justices of Middlesex from adopting the Act, so that he may remain the sole inspector of gas-meters for the whole metropolitan district. The magistrates were memorialized at the last sessions by some of the meter manufacturers, and by several parishes to appoint inspectors, but they again referred the matter to the committee for accounts, and for general purposes. Mr. Taunton, who professes to be able to test all the gas-meters made in the metropolis, was ready to impress on the magistrates his superhuman power of testing and stamping gas-meters; and it is to be feared that, unless the parishes memorialize more generally for the appointment of other inspectors, such a monstrous job may be actually perpetrated. The Surrey magistrates have also been petitioned on the subject, and their decision has been adjourned to the Michaelmas general quarter sessions. There is a probability, therefore, that all the meters made within the metropolitan district may have to wait for the impress of Mr. Taunton's stamp before they can be used. It would surpass the power of ten ordinary men properly to get through such an amount of work; and, even supposing no favouritism to be shown towards those who are known to be his friends, there could not fail to be great injury inflicted by this obstruction to business. We have heard that other parties have been aiding and abetting in these intrigues to frustrate the amendment, and to obstruct the action of the Sales of Gas Act; but we will not at present drag them from the holes and corners in which they lie concealed.

Mr. George Glover, not satisfied with his newly-acquired honours at the Exchequer Office, has put forth additional claims to public notice by becoming the patentee of "improvements in apparatus for measuring gas," the specification of which has been recently lodged at the patent office, and an abstract of it appears in another column of our JOURNAL this day. The professed object of the invention consists in the manufacture of the bells of gasholders of glass, or of a metallic alloy that gas will not decompose; and it claims also, as his invention, the attachment of thermometers to such apparatus. The invention—if it be worthy of the name—is simple enough, and it might have been very shortly described; but that would not have fulfilled the object which the patentee had in view. He evidently intended, under the sanction of Her Majesty's letters patent, to publish to the world his superior knowledge of the art of meter-testing, for the specification is principally occupied in describing that process—as if his patent were for some new plan of testing meters, instead of for the construction of gasholders with a new (?) material. The object of this puffing is too transparent to require exposure. Were the professed invention anything more than a sham, it would be open to grave objection, as it presents a taint of corruption at the fountain-head, which one of the clauses of the Sales of Gas Act especially guards against in subordinate officers. To avoid the effect of prejudice or interest ininfluencing the judgment of meter inspectors, it is especially provided that no one shall be appointed to such offices who is a maker, repairer, or seller of meters; but here we have one of the authorities of the Exchequer Office, who was appointed to provide the standard gasholders, actually the patentee of a gasholder that may be brought to him to verify. We have, on previous occasions, pointed out the indiscretion, to say the least of it, of appointing, as one of the officers for carrying out the Act, a person who was, till recently, his brother's agent for the sale of dry meters. But the present violation of the principle of justice is surely too flagrant for even his supporters to countenance, and Mr. G. Glover must, we imagine, either part entirely with his interest in the patent, or he must cease to hold office as a tester of his own and rival gasholders.

The liquidation of the claims for expenses incurred in prosecuting the Metropolis Gas Act of 1860 has made some progress, as it appears from the report of the solicitor to the Westminster District Board, presented at its meeting on Friday last, that the Metropolitan Board of Works will have in hand upon their precepts, after paying the taxed costs, a surplus of £2089, which sum is claimed by such vestries and district boards as advanced to the delegates various sums amounting in the whole to £2325, as set forth in the schedule attached to the report. With the settlement of these claims, it is to be hoped that we shall have heard the last of this agitation, although a notice of motion, given by Sir John Shelley, for a return of the sums paid by the Metropolitan gas and water companies for works done under the 98th, 109th, and 115th sections of the Metropolis Local Management Act 1855, seems to indicate that some new grievance is being sought after. Such a return will not, however, show the total sums paid for repairs of pavements, &c., as in many instances direct payments are made to contractors without their passing through the hands of the local authorities; and it is, therefore, calculated to mislead rather than enlighten the public as to what the expenses of gas and water companies are in this respect.

Lord Monteagle has moved, in the House of Lords, for a "copy of any reports on evidence taken before the trustees of the British Museum respecting the illumination of public buildings and galleries with gas, and any resolution of the trustees entered into in relation thereto." This is the first public intimation given of any such inquiry having taken place.

The barefaced piracy of "trade marks" which has been so long practised with impunity by foreign manufacturers, to the injury of the legitimate owners of those marks and of the public, will, we trust, be considerably diminished by the passing of the Bill now before the Legislature for the protection of our manufacturers; but, unless our Colonial Legislatures take the same course, the remedy will be only a partial one. It is notorious that some of the petty German Governments protect these fraudulent traders, and that in Hamburg especially they are encouraged. A Sydney paper which has recently come to hand contains a caution, inserted by the engineer of the gas company, warning the public against the purchase of some spurious fire-bricks, of Dutch or German manufacture, bearing the well-known name of "COWEN," which had just been imported from Amsterdam and Hamburg. The consequence of this notice was an immediate fall of 75 per cent. in the current price of spurious articles; and even at the reduced rate, their sale was difficult. An enormous loss to the importer was consequently incurred; and, where the law is powerless to put down such frauds, this is the only means by which it can be effected.

Some interest is excited by the announcement of the sale by auction of 437 of the new £25 shares of the Equitable Gas Company, upon which £5 is to be forthwith paid up, and the balance as required. These shares rank equally with the old shares with regard to dividend, which is now after the rate of 10 per cent. per annum. The shares of the newly-formed Malta and Mediterranean Gas Company offer a favourable opportunity for investment, and the respectability of the direction is a guarantee for the efficient administration of its affairs.

The monotony of the cheap gas movement in Scotland has been enlivened by the introduction of some personal attacks, which Mr. Flintoff has excited by his reckless charges against gas companies and those who are concerned with them. He was invited to the small town of Musselburgh, about five miles from Edinburgh, and in that retired locality he gave vent to more random talk than he had previovsly ventured to utter in Edinburgh or Leith. But, unfortunately for him, one of his hearers happened to be an experienced gas manager, who

boldly denied Mr. Flintoff's assertions, and offered to prove that they were fallacious. He did not, however, obtain a very patient hearing, and he has since replied to Mr. Flintoff in print. The antagonist thus called forth is Mr. Young, the manager of the Dalkeith gas-works, who brings forward some of Mr. Flintoff's antecedents, for the purpose of showing that the "gas engineer," who declares that the Scotch gas-managers know nothing about their business, has gained his own knowledge of gas affairs within the last ten years, and that, in the course of that brief period, some of his attempts to lower the price and improve the quality of the gas by agitation, have been complete failures. Mr. Young seems to know his man, and he has dealt with him so smartly that we expect it will serve as a lesson to Mr. Flintoff to be more cautious in his future assertions. If we may judge of the success of his mission to Edinburgh by its fruits, it is not much to boast of. The sums collected in aid of the cheap gas movement, by the Gas Consumer's Association, do not amount to more than £27. With this fund in hand, the association advertise for tenders for a million bricks, one hundred miles of cast-iron pipes, 500 tons of iron-castings, 250 clay retorts, and for an annual supply of 50,000 tons of cannel coal. We need not add a word more to show that the threatened formation of a new gas-work is a mere *brutum fulmen*.

Mr. Alfred Penny has addressed to us a communication, complaining of the terms in which we alluded to him in our last issue in connexion with the opposition offered by the Huddersfield Commissioners to the Bill of the Huddersfield Gas Company, and protesting against his being placed "on a level with a person so notorious as Mr. Flintoff." Our readers have an opportunity of informing themselves of the particulars of this case by perusing the ample report given in another column of the proceedings in the House of Lords, and we leave them to decide whether Flintoff ever lent himself to a more impudent or reckless attempt to depreciate the value of the property of a gas company than that to which Mr. Penny lent himself in this instance. A witness must, to some extent, share the responsibility of the mode in which a case is got up and conducted, and ought to retire from it when he finds that his character is compromised. Mr. Penny knows very well that his clients committed a gross blunder when they relinquished their provisional bargain to purchase the undertaking of the company in 1859, and he should have had the candour to tell them that their present pretensions were untenable, as the tribunal to which they were submitted pronounced them to be. On one point, however, upon which he corrects us, we cheerfully give him the full benefit of his contradiction by stating, that he was not retained at the instigation of Mr. Hughes, and that he was not aware, till the day previous to the meeting of the committee of the Lords, that the commissioners did not intend to call Mr. Hughes.

Register of New Patents.

2635.—Amherst Hawker Renton, of 49, Cambridge Street, Eccleston Square, Pimlico, London, C.E., for "*Improvements in apparatus employed in the production of light.*" Provisional protection only obtained. Oct. 29, 1860.

This invention relates to apparatus employed in the production of light, more particularly when oxygen and hydrogen gases or their compounds are consumed on a surface of lime or other suitable material, and consists, in combining the apparatus by which the gases are generated, with that by which they are consumed, in a case, or other receptacle within the base, or otherwise attached to the lamp containing the lime or other material, so as to constitute a portable lamp when desired, capable of being moved from place to place, or a fixed light when required to be stationary.

This object is effected by placing the generating-apparatus for both the gases employed within the pedestal of the lamp, or contiguous thereto, such pedestal, or other receptable being of a limited size, as the generation of the gases is regulated by the consumption thereof, by which arrangement pipes, capacious gasholders, and the usual appendages to the generating portion of such a system of lighting are dispensed with, thereby producing a more economical apparatus for the production of light, and conducing to its use under circumstances where such lamps or lights could not, or would not, be applied.

2673.—William Edwards, of Manchester, engineer, for "*A self-acting apparatus for regulating and adjusting the pressure of gas and other fluids.*" Patent dated Nov. 1, 1860.

This invention relates to apparatus for regulating and adjusting the pressure of gas, or other fluids, that is, reducing the pressure of the same to some constant standard, or thereabouts, by which the application and use of the gas or other fluid are the most useful and economical.

This is effected by employing what is called an inverted syphon, containing mercury or other fluid, the fluid in one leg of the syphon being pressed upon by the atmosphere, and in the other, by the gas or other fluid, whose pressure is to be regulated and adjusted. On the surface of the mercury in one of the legs rests a float, which is connected to a valve which closes the aperture through which the gas or other fluid passes. When the supply, and consequently the pressure of the gas or other fluid is too great, it forces the mercury into the opposite leg; against the pressure of the atmosphere the float descends, and with it the valve. This action partially closes the aperture, and restrains the pressure and supply of the gas or other fluid. But, when the pressure and supply of the gas or other fluid are too little, the pressure of the atmosphere forces a portion of the mercury into the leg opposite to the one on which it acts. This raises the float, and with it the valve; by which action a greater supply, and consequently pressure of the gas or other fluid is obtained.

The claims are for—

1st. The application and adaptation of an inverted syphon, in combination with a float and valve, for the purpose of regulating and adjusting the pressure of gas or other fluids as herein described.

2. The construction, application, adaptation, and arrangement of the apparatus, shown in the drawings annexed, for the purpose of regulating and adjusting the pressure of gas or other fluids; including, also, the variation or variations of the same as herein described.

2699.—Thomas Wrigley, of Bridge Hall Mills, near Bury, Lancaster, paper manufacturer, for "*Improvements in apparatus for filtering water and other liquids.*" Patent dated Nov. 3, 1860.

According to this invention, the liquid is caused to pass into the filtering medium in a horizontal in contradistinction to a vertical direction. Two vertical tubes, or other shaped vessels, are used, one containing the filtering medium, and the other the liquid to be filtered, and a combined apparatus is formed by placing a number of tubes or chambers in one vessel. To the bottom of this vessel are attached a number of tubes of wire gauze or other similar material; and, outside these, with spaces between, are other tubes, also of wire gauze or the like material. The spaces between the two are filled with sand or other suitable filtering medium. The water in the vessel passes through the outward tubes, thence through the filtering medium, and into the inward tubes, through which it falls into the receiver, and is conducted therefrom to any required situation by a pipe.

The chief object of this invention is the filtration of large quantities of water for manufacturing purpeses, as in the paper trade; but an apparatus consisting of a single pair of tubes may be employed when smaller quantities of liquid are to be filtered. The tubes, so called, may be round or square, or of any other required shape, and the wire gauze strengthened in any suitable manner according to the area.

The claims are for—

1. The use of apparatus whereby the fluid is caused to pass into the filtering medium horizontally.

2. The use of a combined apparatus formed by placing a number of tubes or chambers, such as are described above, in one vessel.

2703.—Joseph Mitchell, of Keighley, in the co. of York, iron-moulder, for "*Improvements in the manufacture of cast-iron pipes, tubes, rollers, and similar work.*" Patent dated Nov. 3, 1860.

This invention relates to certain improvements in the formation of the moulding-boxes used for casting pipes, tubes, rollers, and such like articles; and also in the mode of constructing the core-bar, and in certain appliances for properly securing it within the said moulding-boxes; and, furthermore, in the mode of forming the model, and in certain means and apparatus for introducing and withdrawing the same from the moulding-boxes. These improvements are as follows:—The moulding-boxes are formed perfectly even and smooth on their edges, having their ends bored true, so that when put together the aperture accurately fits the extremities of the core-bar like a piston-rod passing through the cover of a cylinder. The core-bar has also those portions ot its extremities which pass through the box-ends accurately turned and smooth. One of the projecting ends has a collar formed on it, which presses against the outer faces of the ends of the boxes, and the other extremity has a neck and shoulders on it—the latter of which lies within the box, the neck passing outwards. When the bar is placed within the boxes, it is firmly and tightly held in its place by means of a cottar driven through the projecting end, which, pressing against the ring or collar on the end of the box, draws up the collar at the opposite extremity, close against the end of the box, and tightens it. The boxes are themselves held together by clamps.

The next part of this invention consists in using a table or quantry having its surface perfectly smooth, the central part either cut away, so as to leave a space for receiving a model, or the top may be formed of two parts, connected by means of screws, so that the space between may be increased or diminished according to the size and shape of the model used.

It is proposed, also, that the quantry or table used shall be mounted on wheels, so as to be easily moved about. The model rests on cottars or bars, attached to the quantry, and, upon these being withdrawn, its extremities rest, and are supported by rods, which move in guides or slides, and which, when acted upon by a balance-lever, and a system of cranks, are caused to be elevated and depressed, carrying with them the model. The mode of working is as follows:—The model, being placed between the cheeks of the quantry, is supported in its position by the cottars, so that its diameter shall coincide with the surface of the table. The moulding-box is then placed on it on the top of the quantry, and then the moulding-sand rammed in. The cottars are then withdrawn, and the model is allowed to rest on the guide-bars at its extremities. The balance-lever is then acted upon, so as to cause the guide-bars to descend, and the model is lowered with them. The box is then removed. A similar action is performed with the other box. The core-bar and loam are then placed with the moulds so formed, the boxes joined together, and the casting formed in the usual manner.

The claims are for—

1. The mode of constructing moulding-boxes, having their edges made perfectly true, and the ends formed and bored so as to fit accurately the models and core-bars, and having the appliances for tightening the core-bar substantially as described.

2. The mode of forming the core-bar with a collar at one end, and cottar-holes or other similar devices at the other, so as to enable the same to be tightened and held firmly by the appliances mentioned before, and substantially as herein described.

3. The use of a quantry or table so formed as to fit and hold the model when inserted within the moulding-boxes; also the means and appliances, in connexion with the same, for supporting and withdrawing the model from the box substantially as described.

2711. — James Webster, of Birmingham, in the co. of Warwick, engineer, for "*Improvements in obtaining gas (mainly oxygen) for improving artificial light, and for other purposes; also for utilizing the products resulting from its manufacture.*" Provisional protection only obtained. Dated Nov. 5, 1860.

To bring into practice these improvements, it is proposed to use an iron or other retort in which nitrate of soda (by preference), or nitrate of potash, or other nitrates are placed, and the same is submitted to a bright red heat in a suitable furnace. A small quantity of carbonic acid gas is given off, which is allowed to escape, after which nearly pure oxygen gas is generated, with a small amount of nitric acid, which nitric acid may be condensed in the usual manner.

The gas is collected by pipes and reservoir, without any further process, but it may be passed through lime-water to free it from any impurities. After the gas is collected, an alkali residue remains in the retort. This residue is taken out and placed in the atmosphere to absorb oxygen again, or steam may be blown into such residue to replace oxygen for that which has been extracted. It is then ready for use again, or the residue from the retorts may be used for other purposes.

2733.—William Cooke, of Charing Cross, London, C.E., for "*Improvements in ventilation.*" Patent dated Nov. 7, 1860.

This invention consists in an improved mode of constructing ventilators of wire gauze, or other perforated material, so that they may be applicable to all descriptions of buildings, ships, railway carriages, and other enclosed spaces; but the description of the plans adopted would be unintelligible without the drawings.

2735.—John Clark, of the Metropolitan Light Company 447, Strand, London, for "*Improvements in outside shop lights.*" Patent dated Nov. 7, 1860.

This invention consists in arranging the lanterns, or outside shop lights, in such a manner that a strong light shall be thrown upon the pavement and road in front of the shop windows as well as into the shop; or, when such light is not desirable upon the pavement or road, it may be used for advertising purposes, by inserting a ground or frosted sheet of glass and writing advertisements thereon. The invention consists in the manufacture of outside shop lights having lenses or bull's-eyes set to the required angle, either at the back or side, and through which the flame that lights the window is also to be reflected for the purpose of throwing a light upon the pavement and road; and, when not required for such purpose, then the gas-pipe which forms the ring is to be filled in with any desired announcement for the purpose of advertising.

2740.—Richard Archibald Brooman, of 166, Fleet Street, London, for "*Improvements in liquid and fluid meters.*" A communication from Louis Constant Uhler of Paris. Patent dated Nov. 7, 1860.

In the bottom of a dome-shaped, or other suitable case, a chamber is formed, entrance into which can only take place through a slide opened alternately to each of two passages, one of which leads into the chamber under a piston or diaphragm of leather, caoutchouc or other like suitable material, the edges of which are held between the edges of the plates forming the chamber. The other passage leads into the chamber over the diaphragm. To the centre of the diaphragm, and working through a stuffing-box on the top of the chamber, a rod is fixed, free to move up and down, or to and fro, according to whether the meter is fixed vertical, or horizontal. A bent arm terminating at bottom in a rack is keyed on this rod, and takes into a toothed sector to the shaft, on which is fixed a weighted lever, while to drag on the lower and plain portion of the sector one end of a rod is fixed, the other end of which is attached to the slide, through which the liquid or fluid to be measured enters the chamber at the bottom of the meter.

The action is as follows. The liquid, or fluid to be measured, say water, is admitted into the slide, which opens into the passage leading into the chamber under the diaphragm, and is closed to that leading into the chamber over the diaphragm. The water fills the chamber, and forces up the diaphragm, and with it the rod fixed to it. This rod in rising takes with it the rack which, acting on the teeth of the sector, moves the weighted lever to the opposite side of the meter to that on which it stood, and at the same time causes the slide to be shifted to close the inlet-end of the diaphragm, and to open that leading from the diaphragm, as fast as the space over the diaphragm becomes filled. The water under it passes away through an outlet now open for that purpose, and the diaphragm-rod in falling, causes the weighted lever to be thrown back, and the position of the slide to be shifted, and so on. The capacity of the chamber being ascertained, the quantity of water at each stroke of the diaphragm may be registered on any ordinary indicating or counting apparatus moved either by the diaphragm-rod, or by the shaft of the toothed sector.

The claim is for—

1. The construction of fluid and liquid meters, with a piston or diaphragm made to act through a rod, or a rack, and sector, and balance-lever, as well as upon a slide substantially in manner and for the purpose hereinbefore described.

2. The arrangement for working the slide.

2812.—Jean Cerille Marius Beziat, of 51, Rue de Malte, Paris, for "*Improvements in the means or apparatus employed for permitting, stopping, and regulating the passage of steam, water, and gases.*" Patent dated Nov. 16, 1860.

The object of this invention is an improved means of permitting, or stopping, and regulating the passage of steam, water, and gas. For this purpose, a valve is employed, which is opened and closed by a "helix" (helice), or sort of screw action—that is to say, in the valve-stem or spindle is formed a helical or spiral groove-path, slot, or channel, or path of channel of the groove, or shape of a screw-thread, in which works a pin or projecting piece on a rod, so that by turning the rod of the spindle the opening or closing of the valve is effected to the desired extent, and the passage of the steam, gas, or water permitted, interrupted, or regulated.

The claim is for—

1. For the combination of a tubular or hollow piece fitted round a rod, and having helical or spiral slots or channels formed in it, with a conical or flat valve, for the purpose of causing such valve to slide or move—that is to say, to open and close.

2. The combination of the herein-described improved valve arrangement with Watt's governor, or other governor or regulating apparatus, for regulating or controlling the admission of steam into steam-engine cylinders, whereby the action of such engines is regulated in the manner described.

3. The employment or application of the said valve arrangement as a tap for the admission and discharge of water, steam, or gas.

2826.—George Glover, of 8, Queen Square, London, for "*Improvements in apparatus used in measuring gas.*" Patent dated Nov. 16, 1860.

This invention has for its object improvements in apparatus used for measuring gas, and the same has reference to the construction of apparatus suitable for having a standard measurement of gas, in order to test gas-holders and other instruments thereby. For this purpose, an inverted cylindrical vessel, closed at the upper end, is used, which is similar to what has heretofore been employed; but such vessel is made of an alloy of tin and antimony, or of glass, or alluminium, which will not be prejudicially acted upon by gas; and, at the same time, its surface will part more readily with water than the metals heretofore used for like purposes.

On the exterior, and at the opposite sides of this vessel, are applied or formed two graduated scales, of the same alloy of metal as the vessel. This vessel is used inverted, and immersed in water contained in a suitable tank as heretofore; and the vessel is also suspended and kept in a state of equilibrium as heretofore. And, in order to read off the graduated scales, a small micrometer in a frame on the margin of the tank is used to each graduated scale. The cock or valves employed in conducting gas into and from the measuring-vessel are lined with alloys of the metals before mentioned, in order that the gas may not act on any parts of the cocks or valves which would be prejudicially acted upon thereby; and thus all the cocks and valves rendered more constant and lasting. Two differential thermometers are used—one at the outlet of the vessel, and one at the outlet of the gas-meter, or gasometer—the instrument which is being tested. These thermometers are graduated from 30° to 90° of Fahr. for per centages of error, to indicate variations depending on temperature, and the capacity of the gas for moisture. In using this apparatus when testing the correctness of a meter, the meter is to be placed on a slate table, which is to be set correctly in a horizontal position. The water used in the tank of the bell is by preference to be distilled water, though rain-water or river-water may be used, but whatever water is employed, gas is to be allowed to flow through it for a time before the bell is used for testing a gas-meter.

The gas is to be allowed to flow through the gas-meter until the atmospheric air has been displaced by the gas. Care is to be observed that the joints are all correct, and that the case of the meter is free from leakage. The cock on the pipe leading from the bell to the meter is to be closed; and, when the bell is full of gas, the cock leading from the gas supply-main is to be shut off, and the cock leading from the bell to the meter is to be open. The pressure and the temperature of the gas in the bell should be observed at the gauge and the thermometer of the bell, and noted at the commencement and at the finish, and the mean of the pressure and temperature taken as the pressure and temperature of the whole contents of the bell. The pressure in the gauge and the temperature at the thermometer on the column should also be taken and noted at the commencement and finish. The pressure in the gauge and the temperature of the gas, as it flows from the meter, should also be taken in a like manner, at the commencement and end, and noted.

Supposing the temperature of the gas coming from the meter is higher or lower than that at which it entered the meter, the difference of per centage indicated by the scale on the thermometers is to be deducted, or added, from or to the quantity measured, according as the gas is of a higher or lower temperature when it leaves the meter than when it came from the bell.

The claim is for the employment of a bell, and measuring apparatus of the materials above mentioned combined with thermometers, such as herein described.

2831.—Alexandre Louis Lévêque, of Paris, gentleman, for "*An improved apparatus for carburating or naphthalizing lighting gas.*" Provisional protection only obtained. Dated Nov. 17, 1860.

The working of this improved apparatus for carburating or naphthalizing lighting gas is based on the principle of keeping the carburating or naphthalizing hydrocarbon liquid at a constant level in the apparatus.

The apparatus consists of a box of metal, or other suitable material, hermetically sealed, and provided with proper pipes for allowing the gas to be naphthalized on being introduced into the box, and afterwards take its exit therefrom; and also with openings for feeding the apparatus with naphtha or other liquid, which openings are to be closed with proper plugs.

In the interior of this box is situated a reservoir for containing the naphtha or other suitable liquid hydrocarbon, which reservoir, open at the top, is either supported on three or more spiral or other suitable springs, or floats on water or other suitable liquid contained in the interior of the box up to the required level, in such a manner that, in the same measure as, in consequence of the absorption of the naphthalizing liquid by the gas, the reservoir becomes lighter, the same will rise, and thus keep the surface of the naphthalizing liquid contained therein at the same level.

Cotton or other suitable wicks are suspended from the top of the box, and pass through the perforations of a perforated plate, situated on the top of the reservoir, while the lower ends of the wicks dip into the napthalizing liquid contained in the reservoir, the first mentioned perforated plates preventing the gas from coming in direct contact with the naphthalizing liquid in the reservoir, and only allowing the gas to saturate itself with the naphthalizing liquid while passing between the wicks, the capilarity of which causes the naphthalizing liquid to rise in them.

2875.—CHARLES HUMPHREY and CHARLES HUMPHREY the younger, both of Wareham, in the co. of Dorset, oil and candle manufacturers, for "*Improvements in distilling coal and peat and bituminous and coaly minerals, and in the treatment of the products therefrom.*" Provisional protection only obtained. Dated NOV. 23, 1860.

In distilling coals and coaly minerals, for the purpose of obtaining oils suitable for burning in lamps, and other purposes, the process heretofore adopted has been to effect the decomposition of the mineral at a low temperature.

It is found, however that, by using the precautions hereinafter described, the mineral can be much more advantageously decomposed at a high temperature. The temperature employed in the decomposition of the mineral materially affects the quality of the products obtained; but, in all cases, the vapours, as they arise from the mineral, if exposed to a high temperature, are decomposed, or resolve themselves into incondensible gas and heavy carburets of hydrogen, of little commercial value.

By this invention, the retorts in which the decomposition of the mineral is effected are constructed and arranged in such a fashion, that the bottom, on which the mineral is placed, is heated strongly, while the top and sides are kept comparatively cool.

Into the retorts, during the decomposition of the mineral, is introduced a stream of gas, entering at the end opposite to that at which the vapours pass into the condensers. The introduction of this stream of gas has the advantage of carrying off the vapours into the condensers, as soon as formed, instead of leaving them for a long time in the retort; and, these vapours being of high specific gravity, and consequently of small volume, and of very low specific heat, are, by the admixture of the cold stream of gas, almost instantaneously cooled.

The temperature of the top and sides of the retorts must, however, be kept sufficiently high to prevent the condensation thereon of the vapours which would in such case trickle down the sides of the retorts, and, coming into contact with the heated bottom, be subjected to an injurious action.

Were the decomposition of the mineral effected in an ordinary gas-retort, which is heated not only at the bottom and the sides, but also at the top, no good result could be obtained, except by operating at a very low temperature. But, by using retorts constructed and set as here employed, and by introducing a stream of gas, the heat employed in decomposing the mineral may be advantageously pushed as far as the retorts will bear.

This process yields an abundant product of crude oil of tar, containing very little heavy lubricating oil, and scarcely any paraffine—the high heat employed in the decomposition of the mineral seeming to determine the formation of the light carburets of hydrogen in preference to the formation of heavy oil and paraffine.

These light carburets of hydrogen, which constitute the great bulk of the products, contain no trace of crystallizable paraffine, but rather resemble what chemists call etherine or etherole, and are principally adapted for burning in lamps.

In operating upon bituminous minerals, which are simply sandstones or shales, impregnated with tar, formed by the previous destructive decomposition beds, this process is particularly advantageous.

The black sandstone of Coalbrook dale is an example of this class of minerals. This sandstone holds mechanically the tar, and parts from it with difficulty. To effect the operation advantageously, a high temperature is required, but the vapours as they rise are exceedingly susceptible of decomposition if left exposed to such high temperature.

In operating upon this latter class of minerals, the stream of gas may be replaced by a current of steam, though the introduction of the stream of gas is preferred; but, in operating upon coals, and coaly minerals, where destructive distillation is essential, the desired products not pre-existing in the mineral, it is found that steam cannot be advantageously employed.

By gas, is meant the uncondensible products of the decomposition of the mineral, and of this there is a large quantity produced; and, as this gas can be used over and over again, there is always an abundant supply. The same general principles are applicable to the destructive distillation of peat.

The crude oil thus obtained is refined by treating it, as is well known, with the concentrated sulphuric acid which throws down a large quantity of black acid and pitch.

This invention further relates to obtaining from this acid and pitch the alkali bases formed by the destructive distillation of the mineral, especially the base known as analine.

APPLICATIONS FOR LETTERS PATENT.

1268.—WILLIAM HENRY BENNETT, of 42, Parliament Street, Westminster, for "*Improvements in apparatus for regulating the supply of gas.*" A communication. May 18, 1861.

1291.—MARC ANTOINE FRANÇOIS MENNONS, of the British and Foreign Patent Offices, 39, Rue de l'Echiquier, Paris, France, for "*Improvements in the coupling or connecting joints of pipes for the conveyance of liquid, fluid, or solid bodies.*" A communication. May 21, 1861.

1308.—WILLIAM TEBBUTT, of Loughborough, Leicester, plumber, and glazier, and gas-fitter, for "*Improvements in ventilating rooms in buildings of every kind or description, and for carrying off the foul air from manufactories, hospitals, stables, or other places, and also the foul air produced by the combustion of gas; which said improvements I call 'The double draught ventilating and condensing apparatus.'*" May 23, 1861.

1316.—FREDERICK HALM DAUCHELL, of Red Lion Square, Middlesex, for "*Certain methods of ascertaining and removing impurities contained in water.*" May 24, 1861.

1343.—COMYN CHING, of Castle Street, Long Acre, Middlesex, gas-engineer, for "*Improvements in gas chandeliers.*" May 29, 1861.

1344.—THOMAS HALE, of 21, Barnsbury Row, Park Road, Islington, Middlesex, gentleman, and ARTHUR WALL, of 12, Canton Street, East India Road, in the same county, gentleman, for "*Improvements in the construction and internal arrangement of furnaces, and in the preparation, manufacture, and treatment of clays, and of articles, surfaces, structures, and erections, subject to the action of fire or atmospheric influence.*" May 29, 1861.

1350.—JOHN HENRY JOHNSON, of 47, Lincoln's Inn Fields, Middlesex, and of 166, Buchanan Street, Glasgow, N.B., gentleman, for "*Improvements in apparatus for regulating the pressure of gas.*" A communication. May 30, 1861.

GRANTS OF PROVISIONAL PROTECTION.

1177.—JOHN HENRY JOHNSON, of 47, Lincoln's Inn Fields, Middlesex, and of 166, Buchanan Street, Glasgow, N.B., gentleman, for "*Improvements in the decolouration and disinfection of liquids, and in the apparatus to be employed therein, which improvements are also applicable to the manufacture or production of drying oils.*" A communication. May 9, 1861.

1217.—WILLIAM CLARK, of 53, Chancery Lane, Middlesex, engineer, and patent agent, for "*The treatment of ammoniacal waters, resulting from putrified urines, and from products extracted by the distillation of coal.*" A communication. May 13, 1861.

1236.—WILLIAM CLARK, of 53, Chancery Lane, Middlesex, engineer and patent agent, for "*Improvements in gas-regulators.*" A communication." May 15, 1861.

1237.—EDWARD CURTIS KEMP, of Avon Place, Pershore Road, Birmingham, Warwick, agent, and THOMAS HALL, of Basinghall Street, Leeds, York, gas engineer, for "*Improvements in gas, and other lamps.*" May 15, 1861.

1268.—WILLIAM HENRY BENNETT, of 42, Parliament Street, Westminster, for "*Improvements in apparatus for regulating the supply of gas.*" A communication. May 18, 1861.

1291.—MARC ANTOINE FRANÇOIS MENNONS, of the British and Foreign Patent Offices, 39, Rue de l'Echiquier, Paris, France, for "*Improvements in the coupling or connecting joints of pipes for the conveyance of liquid, fluid, or solid bodies.*" A communication. May 21, 1861.

NOTICES TO PROCEED.

166.—JEAN BAPTISTE PASCAL, of Lyons, France, civil engineer, and of 29, Boulevard St. Martin, Paris, for "*Improvements in generating burning gases to be applied as a motive power, and in apparatus for the same.*" Jan. 21, 1861.

170.—WILLIAM COOKE, of Charing Cross, civil engineer, for "*Improvements in apparatus for filtering.*" Jan. 22, 1861.

652.—FREDERICK IRACHSEL, chemical engineer, and THOMAS CLAYTON, both of Manchester, Lancaster, for "*Improvements in the manufacture of gas, and in the apparatus employed therein.*" March 15, 1861.

Parliamentary Intelligence.

HOUSE OF LORDS.

MAY 27, 1861.

The LORD CHANCELLOR acquainted the House, that the Examiner had certified that the Standing Orders applicable to the ELLAND GAS Bill had been complied with.

The HASLINGDEN UNION GAS, and the SWANSEA GAS Bills, were returned from the Commons, agreed to.

The NEATH WATER Bill was returned from the Commons, with the amendment, agreed to.

The HUDDERSFIELD GAS Bill was read a third time, with the amendments, the Bill passed, and sent to the Commons.

MAY 28.

The DARLINGTON LOCAL BOARD OF HEALTH Bill was brought from the Commons, read a first time, and referred to the Examiners.

The NORTHAMPTON WATER, and the RYDE WATER Bills, were returned from the Commons, agreed to, with amendments. The said amendments were considered, and agreed to.

The STANDING ORDERS COMMITTEE reported that, the Standing Orders not complied with in respect of the BURTON-UPON-TRENT WATER Bill, ought to be dispensed with.

The SOWERBY BRIDGE GAS Bill was referred to a select committee, consisting of the Duke of Manchester (chairman), the Earl of Cawdor, Viscount Lifford, Lord Walsingham, and Lord Rivers, who will sit on Thursday, May 30, at eleven o'clock.

MAY 30.

A petition was presented against the ELLAND GAS Bill, from owners and occupiers of property, and consumers of gas within the township of Elland-cum-Greetland.

MAY 31.

The UXBRIDGE GAS Bill was returned from the Commons, agreed to, with amendments. The said Amendments were considered, and agreed to.

The ELLAND GAS Bill was read a second time, and referred to a select committee, consisting of Lord Lyveden (chairman), Earl Amherst, Lord Abercromby, Lord Harris, and Lord Tredegar, who will sit on Tuesday, June 4, at eleven o'clock.

The BURTON-UPON-TRENT WATER Bill was read a second time, and committed.

The SOWERBY BRIDGE GAS Bill was reported from the select committee, with amendments.

HOUSE OF COMMONS.

MAY 23, 1861.

The NEATH WATER Bill. Lords amendment agreed to. Bill read a third time, and passed.

The NORTHAMPTON WATER Bill. As amended, considered, and ordered to be read a third time.

The STOCKPORT DISTRICT WATER Bill. As amended, to be considered.

The GRAND JUNCTION WATER, and the LEIGH DISTRICT GAS Bills, were read a second time, and committed.

The VICTORIA DOCKS GAS Bill was read a first time, and referred to the Examiner.

A petition was presented against the PAROCHIAL ASSESSMENTS Bill; and one against the DUBLIN CORPORATION WATER Bill, from the owners of property in Dublin (*against the amendments made in committee, and for the recommittal of the Bill.*)

MAY 27.

The EXAMINER reported, that the Standing Orders, not previously inquired into, have been complied with in respect of the VICTORIA DOCKS GAS Bill.

The RYDE WATER Bill. Lords amendments agreed to, with amendments.

The DARLINGTON LOCAL BOARD OF HEALTH Bill was read a third time, and passed.

The NORTHAMPTON WATER Bill was read a third time, and passed, with amendments.

The UXBRIDGE GAS Bill, as amended, was considered, and ordered to be read a third time.

The BLACKBURN WATER Bill was read a second time, and committed.

MAY 28.

The ISLE OF WIGHT WATER Bill was reported, without amendment, and ordered to be read a third time.

The KINGSTOWN WATER Bill was reported.

The EXAMINER reported, that no Standing Orders, not previously inquired into, are applicable to the WHITWORTH VALE GAS Bill. The Bill was ordered to be read a second time.

The EXAMINER reported, that the Standing Orders, not previously inquired into, have been complied with, in respect of the WESTON-SUPER-MARE GAS Bill. The Bill was ordered to be read a second time.

The STOCKPORT DISTRICT WATER Bill, as amended, was considered, and ordered to be read a third time.

A message was received from the Lords, intimating that they had agreed to the HUDDERSFIELD GAS Bill.

MAY 30.

The EXAMINER reported, that the Standing Orders, not previously inquired into, have been complied with, in regard to the STAFFORDSHIRE POTTERIES WATER Bill. The Bill was ordered to be read a second time.

The UXBRIDGE GAS Bill was read a third time, and passed, with amendments.

The SALE OF GAS ACT.—Petitions were presented from the Great Harwood Gas Company, and the Eastbourne Gas Company, for inquiry into the working thereof.

A petition was presented against the PAROCHIAL ASSESSMENTS Bill.

A message was received from the Lords, intimating that they had agreed to the LIVERPOOL IMPROVEMENT Bill, the amendments to the NORTHAMPTON WATER Bill, and the RYDE WATER Bill without amendment.

MAY 31.

The Lords amendments with respect to the HUDDERSFIELD GAS Bill were agreed to.

The DUBLIN CORPORATION WATER Bill was ordered to be read a third time.

The order that the MACCLESFIELD GAS Bill be committed was read and discharged, and the Bill withdrawn.

A petition was presented against the GRAND JUNCTION WATER Bill, from the owners, &c., of dwellinghouses, &c., of Twickenham; also, against the BLACKBURN WATER Bill, from the mayor, aldermen, and burgesses of Blackburn.

HOUSE OF LORDS.

(*Before the Earl of* EGLINTON, *Chairman, the Marquis of* SLIGO, *Lord* HOME, *Lord* DYNEVOR, *and Lord* CONGLETON.)

BLACKBURN WATER-WORKS BILL.

MONDAY, APRIL 22.

Mr. CALVERT, Q.C., and Mr. PAGET, appeared for the promoters; Mr. OVEREND, Q.C., and Mr. JONES, for the corporation of Blackburn; and Mr. D. D. KEANE for Mr. Hindle, a millowner, petitioners against the bill.

Mr. CALVERT, in opening the case, said the object of the bill was to make better provision for supplying with water the town and township of Blackburn, and the townships of Lower Darwen, Livesey, Witton, Oswaldtwistle, and Little Harwood, and for other purposes. In bringing the matter before their lordships, he would state, as briefly as possible, the points which were in dispute between the promoters and those who appeared as petitioners against the bill. The town of Blackburn was already supplied with water to a considerable extent; but, the present means at the disposal of the promoters were inadequate to meet the rapidly-increasing demands made upon them. They proposed, by this bill, to extend their means of supply, and also to include in the area of their operations the several villages and townships which he had named. The preamble of the bill stated that the Blackburn Water-Works Company were incorporated by an Act of Parliament passed in 1845, which Act authorized them to construct works for supplying the inhabitants of the town and neighbourhood with water. In carrying out that Act, the company had constructed one reservoir at Daisy Green, another at Pickup Bank, another at Guide, two others at or near Audley, and another at Hoddlesden, in the parishes of Blackburn and Whalley; and, by means of such reservoirs, and of the conduits and works in connexion therewith, had supplied the inhabitants with water, and provided compensation to millowners and others. It appeared, however, that the water which, by means of these reservoirs, the company could impound and make available for the purposes of the town and neighbourhood, was greatly insufficient for the increasing wants of the inhabitants; and the company sought, by this bill, for powers to enable them to construct additional reservoirs near the present Guide and Hoddlesden reservoirs, and connecting-aqueducts with the Hoddlesden and Pickup Bank reservoirs, and to provide other works. By these means, they would be placed in a position to supply not only the town and neighbourhood of Blackburn, but also the townships already referred to, which were close in the vicinity, and to which a supply would be a great boon. The town of Blackburn was a very considerable place of business, and was thickly inhabited. In proof of the rapid increase in its population during late years, he might state that, whereas in 1844, the returns showed that it contained about 40,000 inhabitants, the census just taken showed that there were now 63,040. To give another test of its increase, he might state that the number of mills in 1846 was 45, whereas last year there were 119, all in full working order; and there were other manufactories in the course of construction. In truth, therefore, it was a thickly-populated place, and one of great and rapidly-increasing business importance. To such a place, he need scarcely say that the possession of an abundant supply of good water was a subject to which it was necessary great attention should be paid. In the year 1844, the inhabitants of Blackburn depended for their supply of water upon a few springs; a small water-work, leased by the lord of the manor; and water brought in carts from a distance of about a mile and a half, and sold at the rate of a penny or twopence a canful. The quantity so obtained was very limited, and often there was a great deal of quarrelling as to who should get the first supply. About that time, the improvement commissioners turned their attention to the subject; and, on the 4th of April, 1844, at one of their meetings, a resolution was adopted, appointing a committee to consider the expediency of obtaining, for the use of the inhabitants, a regular and constant supply of water. That committee took the matter up, and made a report, which, on the 14th of June following, was specially taken into consideration by the commissioners. The report stated that, not more than 780 houses and tenements, containing about one-eighth of the population, were supplied with water from the then existing works, that the supply was scanty, and for the purpose of watering streets and extinguishing fires there was none, except what was obtained from the brooks, which was very irregular. The committee also stated that, to obtain a good and abundant supply of water to the neighbourhood, would contribute largely to the health and safety of the town, and that the construction of water-works, upon a scale adequate to the necessities of the inhabitants, was a matter not only of expediency but of general necessity. The commissioners, on that occasion, received and approved the report, and directed the committee to take such steps in the matter as they might think advisable. Another meeting of the commissioners was, however, held on the 5th of July following, when a notice of motion was given, for the purpose of revoking the above resolution; and, at their meeting on the 1st of August, they resolved, by a majority of 48 to 11 that, "The resolution of the 14th of June last be, and the same is, hereby revoked and annulled;" thus signifying their intention not take any steps towards improving the supply to the town. This last resolution of the commissioners being very unsatisfactory to the town and townships, where the want of an adequate provision in this respect was largely felt, a joint-stock company was speedily formed, who obtained an Act of incorporation in the following year. From the undulating character of the district, it was found very difficult to obtain an adequate supply of water. It was originally thought that a junction might be effected with the Over Darwen works, by which, a constant supply could be furnished to the district. The only other source of supply besides those which would be brought under the notice of the committee, was in the hands of the Over Darwen Water Company and the Liverpool Company, which supplied the town of Liverpool at a distance of twenty-six miles, and as he had said, the first idea was to obtain, by arrangement with one of these companies, a sufficient quantity of water for Blackburn; but, after negotiation with the parties, this scheme was found impracticable. It was important to note this event, in consequence of a petition which he should presently have to call the attention of their lordships to, and also further to observe that, in 1859, it was in contemplation to bring in an amalgamation bill with the company he had referred to. This plan, however, not having been proceeded with, the promoters of the present bill consulted with Mr. Bateman who, having carefully looked into the question of the supply of water to Blackburn, reported to the committee, in September last, upon various sources, but giving a manifest preference to the plan now to be submitted to the committee. On the 27th of October, the directors resolved to adopt the recommendation of Mr. Bateman; and, at a meeting of the proprietors of the company on the 30th of November, the determination which the directors had come to was sanctioned and confirmed without any kind of opposition thereto. He was not about to trouble the committee with any statement at length with regard to the works. They were very simple; but any statement by him, respecting them, would only be furnishing the committee with information, at second hand, which they would shortly have from the mouth of the engineer himself. They merely amounted to the construction of two additional reservoirs and other works, partly with a view to the supply of Blackburn, and partly with a view to compensation. In addition to this, there was the introduction of a certain amount of additional gathering-ground (and a new reservoir, marked on the map), from which a quantity of water would be taken to supply the works of Mr. Hindle. These matters were all, in themselves, so simple, that the inquiry itself was not likely to occupy long, and the only questions to be raised before their lordships were those arising out of the petitions. He might state that the compensation at present given by the company was at the rate of 5 cubic feet per second, during twelve hours of every working day; but, by this bill, that compensation was to be raised to 6½ feet, so that he believed the millowners would have no reason whatever for complaint. The only other matter to which he would refer, was the question of finance, and which was of this nature. The company had already the power to raise £60,000 by shares, and £19,666 by loans, and they had raised the full amount of share capital by the creation and issue of 6000 shares of £10 each, and they had exercised their powers of borrowing to the extent of £19,400. The committee were aware that, under the General Act, a company having incurred a loan, had the power to issue shares corresponding to the amount of such loan. This company had availed them-

selves of that power, and had converted their loans into capital by the creation of 3000 shares of £6. 10s. each, of which 33 shares had never been issued. The other 2967 shares, representing capital to the amount of £19,285. 10s., were issued at a premium of £2. 12s. each. That premium, amounting to £7714, the company did not propose to ask the committee to capitalize, or to allow them to raise dividends upon. The company had also expended £4733, out of their profits, upon the works, which they asked to be permitted to charge as part of their future capital. They sought, in addition, in order to meet the present cost of necessary extensions, and to provide for future exigencies arising out of the prospective increase of their operations, to raise their share capital to £100,000, with a borrowing power of £25,000. He thought the committee would consider this proposition an exceedingly reasonable one, and would have no hesitation in giving their sanction to the arrangement. The first petition against the bill was that of the corporation of Blackburn, which, after reciting the historical facts he had already mentioned, alleged that the estimates of the company were extravagant; that the proposed extension of supply beyond the township was injudicious, and was a breach of faith with the commissioners; that the intended new works were badly devised; that the source of supply was ill-chosen and inadequate, and ought not to be sanctioned; and that the bill, as a whole, would be prejudicial to them, inasmuch as it repealed the company's Act of 1845. In reference to this petition, he would only say, as the committee would presently hear the evidence in support of the bill, that it came with a very bad grace from the persons who now occupied the position of the improvement commissioners. The other petition was from a Mr. Hindle, a millowner, and it stated that the company proposed to take water from a certain brook or stream of which he was the owner, which brook passed through several farms belonging to him; and that the abstraction of that water would be a great injury to him. But, when that gentleman knew the care which had been taken by the promoters of the bill to prevent damage arising to him when the proposed works were carried into execution, he would see at once that it was not necessary for him to appear before Parliament, for the protection of his own interests. With these remarks, he would leave the matter in the hands of their lordships.

Mr. *Dugdale*, examined by Mr. PAGET.

I am a magistrate of the county of Lancaster, and Deputy-Lieutenant. I am chairman of the water-works company, and have been so since its establishment in 1845. I was acquainted with the township and neighbourhood before that time, having resided there since 1820. Before the establishment of the water-works, the supply of water in the town was so scanty during the summer season, that the working classes had to go to the various wells before six o'clock in the morning, or they were unable to get any; and, very often the wells were dry. The deficiency was so great, that men used to bring water from a distance in hogsheads upon wheels, drawn by a horse, and sell it to the inhabitants. There were some small water-works, which collected their supply from a drainage area of seventy or eighty acres, a large portion of which now forms a public part of Blackburn. Those works supplied a small portion of the inhabitants. They were private property, and after the establishment of this company, they were bought up. Prior to the year 1851, the affairs of the town were in the hands of commissioners; since then, they have been under the provisions of the Municipal Corporation Act. I was one of the commissioners. I recollect a meeting being held in the month of April, 1844, and the consideration of the water supply to the town being brought before it. It resulted in the appointment of a committee, of which I was a member. There were four other commissioners on that committee, and we reported that measures ought to be taken for obtaining a supply of water. Our recommendation resulted in the appointment of another committee; but, ultimately, the commissioners decided, by a majority of 48 to 11, against taking any steps, in their character of commissioners, for supplying the town with water. Subsequently, the company, of which I am the chairman, was formed. At that time, the deficiency of water was the cause of great complaint. When we applied to Parliament for our bill, the commissioners petitioned against us, and appeared before a committee of the House to oppose it. We obtained our bill in the session of 1845, and we began to supply water in January, 1848, and have continued to do so regularly ever since. The town has very much increased since the establishment of these works. The population, which was then estimated at 46,000, at the present time, is upwards of 63,000. It is a busy and improving place. There are many manufactures carried on there, and there were never more factories in the course of erection there as during the last year and this. The villages or townships of Lower Darwen, Livesey, Witton, Oswaldtwistle, and Little Harwood, are close adjoining to Blackburn. We employed Mr. Bateman in the construction of our works. In 1854, we had only a few weeks supply in our principal reservoir, and the other reservoirs were empty. We then requested Mr. Bateman to report to us the most economical mode of impounding the flood waters of the district. We found, from reports that were periodically made by the servants of the company, that during the floods, a large quantity of water ran to waste, which we had not the means of impounding, and which would have filled reservoirs of double the capacity of those we had. To avail ourselves of this source of supply, we excavated the earth at the bottom of our reservoir, and raised the bank three feet, which was then considered the most economical mode of proceeding. That added to our capacity about fourteen days supply to the town. Mr. Bateman in his report, also suggested that we should construct an additional reservoir at the north end of the Guide reservoir, but we had no parliamentary authority to take the land, nor capital to construct the reservoir. We afterwards found that the service-reservoir was not sufficiently capacious, and that the water was almost constantly in motion, so that we were unable to deliver it so clear as we desired to do. We, therefore, determined to construct another and larger service-reservoir capable of holding fourteen days supply, for the purpose of increasing the pressure to the town, and also to allow it to settle, and enable us to deliver it more pure. The result has justified our expectations, but we still found that the demand for water was greater than our power to supply. We, therefore, again consulted Mr. Bateman, and that has resulted in our present application to Parliament. Under our Acts of incorporation, we had power to raise £60,000 in shares; that is, £40,000 under our first Act, and £20,000 under the second, with a borrowing power of £19,666. We have a debt still outstanding of £12,250. We have raised by new shares £11,868, and we have also raised by premiums £4747. We have still calls in respect of such shares to the amount of £7417, and upon premiums attached to the same £2967 making together £10,384, and showing that our capital including the outstanding debt is £103,982.

Cross-examined by Mr. OVEREND: I resided in Blackburn until 1857. I now reside at Witton, which is partially supplied with water at present under an Act of Parliament. There has not been any actual deficiency in Blackburn since 1854, but with the large increase which is taking place in the town, there is a prospect of a deficiency. Our great object in promoting this bill is to meet that difficulty, as we have already expended more capital than we were authorized to raise. We thought it was the most prudent course at the same time to obtain powers to extend our works, in anticipation that they would be wanted. In the township of Witton, there is a road, the houses on one side of which are in Blackburn. Our pipes are in the centre of that road, and we have been appealed to by the inhabitants on the side which is not in our district to supply them. We have no filtering-apparatus. We had at one time, but we found that during the time it was in use, we could not supply the town satisfactorily. We then adopted another plan, which was that instead of taking the water from the bottom of the reservoir as had been our practice, we now take it from the top surface. We have a reserve-fund amounting to £687, which has been created out of the profits derived from employing our own plumbers in fitting the houses of consumers.

The CHAIRMAN: These minute facts it is not necessary to go into.

Witness: I only wish the committee to understand that it has not been created out of the water-rates, but by the profits on plumbing.

By Mr. OVEREND: Our highest dividend has been at the rate of 6¾ per cent., and the lowest 5¾. We had a scheme for uniting with the Darwen Water-Works, but that was given up in 1859, the directors considering that the liabilities of the Darwen Company were such that they could not undertake it; and the intended application to Parliament was abandoned after the notices were given. Mr. Bateman, in his report upon the amalgamation, showed certain other modes for increasing our supply; but, after we had abandoned the idea of amalgamating with the Darwen Company, we found that the increase of the Blackburn works, as he then recommended, was not sufficient to proceed to Parliament for, and would not be adequate to the prospective increase of the demand. We then instructed him to prepare another scheme. That was early in 1860, during the time that Parliament was sitting. He made his report in September. He was authorized to report a scheme to us long before we heard of the corporation plans. The corporation have been talking about it for a year or two; but there was no resolution of the corporation on the subject prior to Mr. Bateman's receiving instructions to make his report. I am not aware whether it was before he made his report that the corporation had come to a resolution upon the question. When we were in Parliament, the commissioners appeared to oppose the preamble of our bill, and certain clauses were introduced for cleansing the town and watering the streets. There is a provision in their Act of 1854 by which they are authorized to purchase our works. They have not made an offer to purchase the works by the payment of 6½ per cent. upon all the capital in perpetuity. They have done so upon part of the capital, but not upon the shares created under the Companies Clauses Consolidation Act on the 29th of February, 1856. Upon those shares, £4 per share has been paid up. The corporation excluded them from their offer. We have refused their proposal. In 1859, our reserve-fund, amounting to £536, was transferred to capital account, because we had expended more capital than we had power to do. It was afterwards re-transferred, and forms part of the sum of £687.

By Mr. KEANE: A large portion of the water we supply is supplied to mills for steam-boilers. We do not supply water for condensing purposes.

Re-examined by Mr. PAGET: The corporation have not deposited any bill, nor taken any steps to supply the town with water; and I never heard of their having any tangible scheme for the purpose. The Darwen scheme went off, because we found the liabilities of that company were such that he did not like to entertain it. Our agents had prepared a bill for carrying the negotiation into effect if it had been satisfactory; and the engineer had prepared plans for it.

Mr. *Bertwistle*, examined by Mr. PAGET.

I am a resident in Blackburn, and am an architect, land-agent, and surveyor, and am employed by a number of landowners in Little Harwood to lay out land for building purposes. I am acquainted with the plans by which it is proposed to supply water in that district, and consider them sufficient for the purpose. It is not supplied from any works at present. It is immediately adjoining the town of Blackburn. Oswaldtwistle is one of the townships to be supplied by this scheme, but the supply will only extend to eighteen acres. The limits of the supply are regulated by the contour of the country, and not by parochial boundaries. I have prepared a plan showing the area of the townships proposed to be supplied, the levels on which are marked from the Ordnance map. The buildings in this area are very considerably on the increase. Blackburn itself is also rapidly increasing on all sides. I have a table showing the number of horse-power supplied in Blackburn. There is 97 horse-power supplied from streams; 110 from surface water impounded in reservoirs; 498 from streams running into the Blackwater; 1315 from the River Blackwater itself; 2497 from the Leeds and Liverpool Canal; and 317 from the water-works company.

Cross-examined by Mr. OVEREND: The principal increase of the population is in the borough proper and adjacent thereto. I know there has been some deviation made in the conducting of the sewerage, and a little deviation in the course of the river itself. The total area of Oswaldtwistle is 4883 acres; but we cannot supply more than 18, as the remainder is not within the limits of our level from the service-reservoir. In that 18 acres, there are, I should think, 150 houses at present. The town of Blackburn is very high in some portions, and is not capable of being supplied in all parts.

By Mr. KEANE: The mills are principally in the town.

Re-examined by Mr. PAGET: There are certainly a great number of houses in the borough of Blackburn which cannot be supplied; but I do not know to what extent that would apply. The borough comprises 3681 acres, and the area within the means of supply is 1897 acres. The borough and township are co-extensive; and they extend considerably beyond the town proper into an agricultural district, a large portion of which is excluded from our contour line of supply. These works do not in any way prejudicially affect the Blackwater. They will tend rather to send water in, than abstract any from it.

TUESDAY, APRIL 23.

J. F. Bateman, Esq., F.R.S., examined by Mr. PAGET.

I laid out the present works for the supply of Blackburn with water in 1844. If I remember correctly, the population at that time was about 36,000. My estimate of the water required by the town was 800,000 gallons per day. The works were commenced in 1845, and were completed in the winter of 1847 and 1848. The supply went on regularly until 1851. The town then required about a million gallons per day. About the same amount is required at the present time. The ground appropriated to the reservoir was 800 acres. I estimated the rainfall at 36 inches. There was a compensation-reservoir, for the benefit of millowners. The cost of the works was about £40,000. The Act was obtained in 1845, and the works were immediately commenced. The water was first supplied in January, 1848. The compensation-reservoir was intended to hold 7 million cubic feet of water, but it was constructed to contain 10 million cubic feet. Five

years were allowed by the Act of Parliament, for the purpose of testing the capability of the compensation-reservoir. There were some small water-works in the town previously to 1845, which were purchased by the present company about 1850, or sooner. The supply of water was gradually increased, till, in 1854, it amounted to 840,000 gallons per day. The number of houses supplied was about 8400. The supply was about 100 gallons per house. In 1857, it was determined to increase the supply. A great economy in the consumption was effected by the use of water-meters. In 1854, the number of houses supplied was 8400, and the consumption 840,000 gallons per day; and, in 1858, after the introduction of the meters, though the number of houses had increased to 10,450, the consumption was only about 853,000 gallons. In 1859, the consumption had reached to 930,000 gallons; and in that year the company consulted with me as to the means of increasing the supply. I advised them to amalgamate with the Darwen Water Company. Instructions were given for coming before Parliament on the subject, but the arrangements were afterwards abandoned, as the company thought it best to form an independent scheme of their own. I was again consulted, and devised the plan which is now before the committee. The quantity of water I propose to provide would be sufficient for 100,000 persons, at 20 gallons per head per day. I should think the present population is about 75,000. The compensation-reservoir being too small for the water which passes into it, a great quantity of water is continually running to waste; and my plan is, to economize that water, and apply it to the use of the town. There are some mills on the river which will be affected by this arrangement, but there is no complaint or petition from the millowners. We are now bound to discharge out of the compensation-reservoir, for the use of the millers, 5 cubic feet of water per second for twelve hours on working days, so long as there is water in the reservoir; but, under the new arrangement, 6 and 6½ cubic feet will be obtained, instead of 5. Mr. Hindle's mill is on a small stream of the river Darwen, and we propose to send one-third of the quantity of water we get down that stream. The amount of water we shall get will be 180,000 gallons per day, and we shall supply that stream with 60,000 gallons regularly. The estimated expense of this scheme is £57,000.

Cross-examined by Mr. OVEREND: I propose to supply 20 gallons of water per head per day. That is quite a sufficient quantity. It would not be sufficient for some districts. Every district must be taken by itself. In Glasgow, the actual consumption is 40 gallons. I make this calculation from experience. In Manchester, the consumption is 21 gallons. I have never recommended 30. Blackburn would not require so much water as some other manufacturing towns, because there is a canal and other streams passing through it.

By the CHAIRMAN: The manufacturers are allowed to take water out of the canal.

By Mr. OVEREND: They probably do so by arrangement. In my calculation, I have not made any special provision for sanitary purposes, because that is included in my general water supply, as well as the domestic consumption. The gathering-ground of the Hoddlesden reservoir is 1260 acres. I have calculated the rainfall in the district. In 1856, it was 40 inches; in 1857, 42½ inches; in 1858, 38 7/10ths inches; in 1859, 44 3/10ths inches; and, in 1860, it was 55 inches at the head of the reservoir, and 41 3/10ths at the foot. The population of the small townships we intend taking in is about 10,000 or 12,000. Some portions of the townships are hardly included at all. We cannot supply the whole district, because a portion of it is above the level. The prevailing wind in Blackburn is westerly. The new reservoir I propose to make is below the old one. I believe there have been some borings there for coal. It is a new district. The water that supplies the present reservoir comes from the Hoddlesden brook. My intention is to make a communication between the two reservoirs. The surplus water is now allowed to run off; and I intend to use that surplus water. There is a mill situated some distance above the reservoir. It is a large mill. I do not know whether there is a new shed being built there. I have not been there lately; I know that the millowners throw their ashes into the brook. I am not aware that they throw their gas tar into it. They have a right to throw their ashes in. The ashes themselves will do no harm to the water. They make a very good filter. I do not know that there is a village, all the drainage from which goes into the stream. Blackburn is in a bad situation for a good supply of water. There are objections to be brought to every scheme, but I believe this scheme is less open to objection than any other. There are a few scattered houses a little way up the stream. I do not know how many houses there are. If it were proved that the drainage from those houses went into the stream, I do not think it would affect my scheme. You must have things of this kind at Blackburn. I do not think it necessary that the water at Blackburn should be filtered. It was filtered when the works were first commenced. I do not know that the people are obliged to filter the water for themselves. The plan we adopt I believe has been satisfactory. We pass the water from one reservoir to another, and so the reservoirs get cleansed. The filters are still in existence. We carry our water in an open conduit—perhaps about 20 feet wide. It is pitched on the sides. The surface is exposed to the air. The Fishmoor reservoir is about a mile and a half from the town. There is a good deal of smoke in Blackburn. The water in the conduit is not likely to be injuriously affected by the smoke. There will be substances deposited, but, by an arrangement in the reservoir, we can get over that difficulty. The reservoir at Manchester is nearer the town than the one at Blackburn. I know that the Government have compelled the New River Company in London to cover their river; but it is very unnecessary. There is no drainage that can affect our water. The pressure in the town will be something more than 200 feet. I have not ascertained how high the water can be thrown in various parts of the town in case of a fire. We do not propose to add to the pressure, but to increase the pipeage, which has the same effect. The extreme parts of the town cannot be supplied with water. At present, we intend to leave the upper part of the town without water.

Cross-examined by Mr. POWELL: My estimate is £57,000. I do not include the coal in my estimate. I do not know whether there are coals there. It is a new district. If coals should be found there, it will not affect my estimate. I do not think there are any coals there. I should not apprehend any danger from working a coal-bed beneath the reservoir. The reservoir is about 40 or 50 feet deep. There is a great weight of water. It will be, perhaps, four or five years before the works are finished. The population of the town is increasing. The principal expense is the construction of works, which are quite independent of piping. I cannot tell the amount of water baths would require. I hope, for the sake of the town, that the proposal of the corporation to turn the old privies into water-closets will not be carried into effect.

By the CHAIRMAN: I think in a poor man's house, a closet is very objectionable. They are very difficult things to keep in order; and, when they are out of order, they are a great nuisance in allowing noxious gases to escape into the house from the sewers. They are also very likely to freeze. I think it very undesirable to have water-closets in the dwellings of the poor in the manufacturing towns of Lancashire.

By Mr. POWELL: I have never reported that it would be desirable to convert the privies in Blackburn into water-closets. I do not make any provision for water-closets in my estimate. If water-closets were generally introduced into the town, a very great addition in the supply of water will be required. The waste of water is very great indeed, notwithstanding the most stringent regulations. I have made provision for a very considerable extension of piping. I have allowed £1500 a year for the next twenty years, besides the pipeage now necessary. The present supply of water is insufficient. I have been engineer during the whole existence of the works. On the first occasion, we may have taken sixty-nine acres gathering-ground from Mr. Hindle. I do not know whether we gave any compensation in money. Mr. Hindle's estate has a mill upon it. I do not know whether he has another in the course of erection. I did not observe another. In 1856, the fall of rain was 40 inches; in 1857, 33 inches; in 1858, 33 7/10 inches; in 1859, 39 2/10 inches. We propose to give 60,000 gallons per day as compensation. We give the other millowners 6½ cubic feet per second for twelve hours.

Re-examined by Mr. PAGET: The millowners are really getting more compensation than they are entitled to.

By the CHAIRMAN: We have deprived Mr. Hindle of scarcely any running water. The streams are almost always dried up in dry weather, and he gets very little water from them.

By Mr. PAGET: We wish to meet Mr. Hindle's case in a perfectly fair way. If there is any injustice, we shall be happy to remove it. We have not the least desire to be unjust. There are thirty millowners on the main stream, who are all interested in the supply of water, and there is not a single complaint from them. Mr. Hindle's mill is on a branch stream. We have not increased our gathering-ground, but we make available a large quantity of water which now runs to waste. We want to take the water that now runs to waste, partly to increase the compensation water and partly to increase the supply of water to the town. Our present supply of water is 1,879,644 gallons, and the compensation is 1,151,233 gallons, leaving a surplus of 728,411 gallons, which is completely useless, because the reservoir is not sufficient to hold it. I believe water-closets are very undesirable things in this district. I never had any very sanguine hopes of the water-closet system, and my experience has shown me that they are most undesirable. We have no power to prevent their introduction by the corporation. If any one requires more than one water-closet, he must pay for the water he uses. If there are to be any baths, of course we can charge for the water supplied to them. As far as my knowledge goes, I do not know that there are any coal-mines under the reservoir. There are mines worked above the level of the reservoir. I have examined the foundation of the reservoir. The houses in a part of the township of Blackburn are very straggling. The whole country is more or less built upon, with straggling buildings. We shall be able, in case of fire, to throw water on the top of every house in the town proper. We sometimes let water in the lower part of the reservoir run off. I calculate to supply 20 gallons per head per day. This includes all the other extraneous wants which are incidental to the town itself. There is often a great waste of water. From my experience in Glasgow, I believe 20 gallons a head to be sufficient. In Manchester, the supply is 21 gallons per head a day.

By the CHAIRMAN: The cost of filtration is about £150 per annum for each million gallons of water per day.

Mr. *James Tattersall*, examined by Mr. PAGET.

I have been secretary to the Blackburn Water-Works Company. I am not so now; I ceased to be secretary in March, 1860. I was secretary for ten years. The number of houses supplied with water in 1849 was 3178. There was a meeting of the company held on the 6th of August, 1859. There was a proposal made to apply a portion of the income to the extension of the works.

Cross-examined by Mr. POWELL: I do not know whether any compensation was ever given to Mr. Hindle.

Re-examined by Mr. PAGET: If there was a claim made, it was met.

Mr. *T. Howard*, examined by Mr. PAGET.

I am a land-agent. I reside in Blackburn. I have been agent to the lord of the manor for seven years. I am intimately acquainted with the district. It is very rapidly increasing in population. There is a great increase in the value of assessable property.

Cross-examined by Mr. JONES: I have known them sink shafts for coal in Blackburn; but they have found it in very small quantities. I believe the dip of the coal is northward.

This was the case for the promoters.

Mr. OVEREND: My lords, I shall now have to make a very few observations to you on behalf of the corporation of the town of Blackburn. The company now before you, was, as you are aware, formed for the supply of the town of Blackburn with water. At that time the corporation did not exist. There was a body of commissioners in the town, but they had no power to construct and carry out any water-works. The consequence was, that the present company was formed. As in the case of most companies, they thought they could benefit themselves and the town as well, and they have gone on dividing 6, 6½, 7, and 7½ per cent. upon their money. When the corporation obtained its Act in 1854, so anxious was it to have the control and management of the water supply that it obtained a clause in its Act, which gave it the power of purchasing the water-works, and having them entirely under its own control. I think the noble lords will agree with me that it is most advisable that the corporations of towns should have the control of the water supply, because by this means they can carry out a great number of sanitary objects with more convenience than if the water supply were in other hands. The Legislature have generally gone in this direction. They have given corporations the power to obtain the water supply as well as the gas supply, and other supplies which are necessary for a town. The corporation, as I have said, were anxious to obtain the water-works, and to have the direction of the supply; and accordingly, in 1860, they made an application for the purchase of the present works. It may be said, "But why did they wait so long a time before they made application?" I ought to state that this is only a young corporation. When it was first started, it had a great deal of work to do; and one of the first requirements was, that they should carry out a system of sewerage in the town, and make it as perfect as possible. Rome was not built in a day, and it was a long time before the corporation had finished its drainage works. However, when the proper time came, and it was thought desirable to have the control of the water supply, a proposal was made by the corporation to the company for purchasing the works. There has been some little misunderstanding on the part of the company on this point. We are willing to buy the whole of the works as they now stand, and to give 6½ per cent. for every share they have got, which is a very fair thing, we taking all the

liabilities. That offer has been declined. Your lordships will see it was a *bonâ fide* offer. It would have been accepted, and certainly we should have been bound by it. It is still open, and they can accept it at this moment if they please. We made the offer, because we object to their scheme being carried out. We believe that, if their scheme is carried out, it will do great injury to the town of Blackburn. As we are advised, the scheme now propounded by the company will be very detrimental to the interests of Blackburn, and we now step in to purchase the works, and to carry out a scheme of a perfectly different character from that propounded by them. One objection we make to their scheme is, that they do not increase at all the area of their gathering-ground. The increased supply of water they propose to give, is rendered unfit to drink from the impure matters which are thrown into it at various parts, and from the drainage from the houses on the side of the river, and would, therefore, have a very deleterious, and injurious effect on the health of the inhabitants, and we say, therefore, that that increase is not an increase, but in point of fact, is a detriment to the scheme. We have an objection, too, to the proposed new reservoir. This reservoir is merely a compensation-reservoir, but they now propose to make it a supply-reservoir, and the supply would have to be carried by an open conduit from the reservoir above to the one below. Representing, as the corporation does, the great mass of the people in Blackburn, they object to this entirely. By the side of the stream which supplies this reservoir, are a number of mills, the owners of which have the right of throwing all their refuse into the stream. It has been said that they merely throw their ashes in, but it will be proved that they really do throw in their gas tar, and this, we say, is highly objectionable, if the water is to be used by the inhabitants of the town for domestic purposes. If the water is to be used, as originally intended, for compensation purposes, then it will do very well, but we strongly object to it for the use of the people in the town of Blackburn. Again we say the scheme is bad, because it has an open canal of something like 20 feet wide exposed to the air, and liable to receive all sorts of impurities. You have brought close to the town a reservoir subject to all these influences, and we, therefore, say your source is bad, and we object to it on that ground. If you have a canal, at any rate we say you ought to have it covered. Then again, there is no system of filtering. We know that at the present time they do not filter their water, and that there is a great deal of private filtration carried on, and we say that a company ought not to supply water to a town without supplying it in a proper state. On all these grounds, we say the scheme is very objectionable. We also object to it on the ground of supply. There is no doubt that at present there is a deficient supply, and yet they actually add to the present district a number of townships without at all increasing their gathering-ground, and we say that the town ought not to be deprived of its present supply by these five additional townships being brought in. Another ground of objection is, that they do not make any provision for the sanitary requirements of the town. The corporation are anxious that these things should be carried out, but they are entirely in the hands of the company, with regard to their supply; and they can put such a price on their supply of water as to prevent any of these improvements being carried out. Mr. Bateman says, if the plan of the corporation is carried out with respect to the sanitary improvements, it no doubt will very much affect the amount of water required by the town. That plan will be adopted, and I believe it is a plan that has been very successful in several towns in England. Mr. Rawlinson, a gentleman of much experience, will be called before you, and will state that he has advised the corporation to carry out the plan, and that it has been adopted in various towns, and has been found to be very successful. The corporation, I may state, intend to act upon his advice. Mr. Rawlinson will prove that the scheme is not a bad one, and that, in point of fact, it will be carried out. If it is carried out, our supply will be insufficient, and the supply they intend to give would be insufficient; and we, therefore, say that their scheme is a bad one. Then, again, it is important that we should have the rates in the town as low as possible, and that the water should be supplied at as cheap a rate as possible; but, if you incorporate in the supply five other townships, with a small population, and you have to take your supply-pipes to a considerable distance, it will have the effect of making the rates much heavier than they ought to be. Under these circumstances, we submit that, in point of fact, this is not the best thing that can be done for the town of Blackburn; and we say, let the thing stand over till next year, when the corporation will come and lay their scheme before Parliament, and let it then be seen which is the better scheme for the supply of the town of Blackburn with water.

Mr. *Brierley*, examined by Mr. JONES.

I am surveyor to the corporation of Blackburn. Blackburn is an improving town. The population, I believe, is rather over 63,000. The rateable value of the town is £132,180. I have made a diagram map of the town, with reference to the proposed scheme of the water company. The rateable value of the different townships is as follows:—Oswaldtwistle, £31,189; Livesey, £21,506; Witton, £5620; Little Harwood, £9091; Lower Darwen, £8450. The population of Blackburn is increasing very much. I should think that, in 1866, it will not be less than 70,000. There will be a greater demand for water in the town, especially as the habits of the people improve in respect to cleanliness. It is very desirable that water-closets should be generally introduced. Water-works ought decidedly to be in the hands of the corporation. Water for sanitary purposes ought to be supplied at the lowest possible figure. The town council are now carrying on a new system of sewerage. It will cost about £60,000 or £70,000. The water supply should be controllable by the corporation themselves, they being the persons who ought to conserve the public health. The town council are contemplating the erection of public baths, which will be under their own control. I think this to be very desirable indeed. The erection of drinking fountains and other conveniences is also contemplated. The corporation also intend to carry out the Act of Parliament, with regard to public baths and wash-houses. The streets have been broken up almost daily for some time. This causes a great obstruction to the traffic, which it is desirable to obviate. I have made experiments on the pressure at different parts. The sewerage system was introduced, on the advice of Mr. Bateman, at an expense of nearly £60,000 or £70,000. I think the area of 360 acres for the water supply is highly objectionable. I do not know whether the water at Manchester is filtered. I think it very undesirable that the charge for water-closets within houses should be by agreement. By the Act of 1854, the corporation have the power of compelling the erection of water-closets. I think it desirable that the water for flushing the sewers should be supplied at a cheap rate. There is no maximum scale of charges in the present bill for supplying water within the borough. It is desirable that it should be so. The water in the compensation-reservoir is quite unfit for domestic use. The various substances thrown into the stream which supplies that reservoir have a very deleterious effect upon the water.

By the CHAIRMAN: I do not say the water, in its original state, that is supplied to Blackburn, is bad.

Cross-examined by Mr. PAGET: I have heard of parties, who were entitled to the use of a stream, indicting persons for throwing deleterious matter into the water. For such offences, it is not uncommon for fines to be imposed. The lowest sum for which a meter can be granted will be £1 per quarter; and, if any persons wish to consume by meter, they must pay that sum. The cost for putting up a meter is about £6. 7s. Of course, there is an expense attending it, because you must send round a clerk to take the amount of water consumed—just the same as in a gas company. I think a water company, like a gas company, ought to make it worth their while to put up a meter for a small quantity. Within those lines coloured blue and red on the map (pointing)—the catchment area—I should say there are between 500 and 600 houses. I cannot be exactly sure, but that is my impression. I have not counted them. Some of the houses are recently built. Not many of them have been erected within my knowledge of the place, because I have only lived four years in Blackburn. I reside on the other side of the town, but I have been over this area for purposes connected with the present bill; and I say, to the best of my judgment, there are not less than 200 houses. As I told the chairman, I do not complain of the water supplied to Blackburn; but I think it is objectionable to add the district which you propose. I do not know the diameter of that pipe. The streets in which I tried the pressure are streets supplied by the Church Street pipe. I know that there has been a dispute between the proprietor of that street and the corporation about the raising of the street; but I do not know why the company should be delayed in laying a larger pipe down on account of that dispute. I am not aware that the company have now got pipes in store for the purpose of laying them in that very spot. In Witton, the supply is very good; there is an abundance of pressure. Witton is one of the lowest parts of the district, and that is what surprised me—to find it had such a large main. I have heard it stated that the corporation contemplate setting up baths. I do not recollect their having a meeting at which it was proposed to have baths, and the proposition was negatived; neither do I recollect any resolution being passed by the town council for the purpose of establishing baths. It is my opinion that the corporation have power to establish baths if they like; but they have no money. I believe there were some water-works purchased by the present company for £4000; but I cannot speak with certainty on this matter, because it was before I went to Blackburn. I do not know that the company have offered to supply some of that water gratuitously to the corporation for baths if they like to establish them. My belief is, that the corporation have the power to use the water in the park if they like. I think it is necessary to confine the supply of water to the township of Blackburn.

Re-examined by Mr. JONES: I know Blackburn very well, and I certainly know of no case where Blackburn houses are on one side of the street, and Witton houses on the other. When I say the corporation have power to make baths, I mean by that they have legal power; but they are without the means to do it. It is the intention of the corporation to bring a bill before Parliament, by which they will ask for power to obtain money.

The CHAIRMAN: You think it is preferable that the corporation should have the water-works in their own hands.

Witness: Yes; and I may say that it is usual in towns such as Blackburn for corporations to have the gas and water-works in their own hands.

Robert Rawlinson, Esq., xamined by Mr. JONES.

I am a civil engineer, and have had considerable experience in hydraulic operations and in sanitary works. I am the sanitary inspector to the General Board of Health; and I have inspected and reported to Government on the sanitary state of towns. I am at present one of the commissioners with reference to the disposal of the sewerage of towns. I have examined the present works, and I am cognizant of the fact that the corporation have made the company an offer for the works as they now stand. I think, if the proposed scheme is carried out, it will saddle the company with a large expense; and it will be a long time before they will be able to pay anything like a dividend. If the corporation had to carry out the scheme, great difficulties would be thrown in their way; and, I think, it would be necessary to keep the water rates very high. I have considered the reservoirs that are proposed to be put up; and certainly, if I had to make additional reservoirs, I should not put them in the position shown on the plan. I know by inspection that the compensation-reservoir is at present fouled by mill ashes and other refuse. There are cottages near the reservoir; and, when the new mill is made which is contemplated, there will be an additional number of cottages. Unless there is some special provision made, the impurity from those cottages will percolate into the reservoir. The quality of the water of Blackburn in its original state is very fine indeed. I am aware that landowners and other persons are boring for coal not far from the reservoir, and, I believe, they expect to reach that mineral at a depth of hundred and fifty yards. I believe that coal crops out within a mile of that place; so that it is very likely it will be tolerably thick just there. It is a coal-field all about there.

Mr. JONES: We are told that, where the coal crops out, it is very thin; but is it not a fact that coal at greater depths, where it has undergone a greater amount of pressure, is much thicker?

Witness: Well, generally speaking, that is so; but it is not universally the case. The people who are boring certainly expect to find coal under the reservoirs; and compensation for that mineral is very considerable. It would depend upon the stratification whether or not I should recommend people to work coal under that reservoir. Such a thing as that always makes your works more costly. I think that the reservoir may be so made that coal can be worked. I know the Fishmoor reservoir, and I think the embankment, in proportion to the area, is very large. The Union Workhouse is being constructed close to that place; and it is intended for 600 inmates. I should imagine that the Fishmoor reservoir will be considerably more costly than the existing reservoir, because it is in the neighbourhood of a building district. I think it desirable that the water supply should be in the hands of the corporation. I feel satisfied myself that, with the limited area of gathering-ground, some portions of the district must suffer. I am aware that it was for the benefit of Blackburn that parliamentary powers were given to the company, and, in my opinion, the gathering-ground is so small that it is not desirable to increase the area of supply. The estimate for the scheme now before Parliament, I believe, is £57,000. The water which is collected in the moors for the supply of Blackburn is very clear, and very good indeed; but it is almost ruined by being exposed in the reservoir. I consider that water for domestic purposes ought to be filtered, or kept from the sun-light. When it is contained in the large reservoir, it is exposed to all the action of the temperature. The water is very soft, and soft waters are greater solvents of impurities, and hold impurities in solution with much greater tenacity than hard water; and they cannot be got rid of by any mechanical means. The corporation have expended a large sum of money in the construction of new sewers, and it is highly desirable that they should have an ample supply of water

for the purpose of flushing those sewers, and it is desirable also, to render them of any value to the inhabitants, that house-drains should be carried out systematically, and that privies and cesspools should be abolished. With all my experience, I am very much in favour of water-closets. I have constructed water-closets in very many towns, and they have always been successful. Among other places, I carried out the drainage-works in Alnwick. When I first inspected Alnwick, it was about as dirty a place as ever I had seen in my life; but now it is quite the reverse, and the system of drainage and water-closets has worked exceedingly well. I think that water-closets are necessary to secure the health of the inhabitants of any village. As far as my knowledge goes, the introduction of water-closets has always been beneficial. My information and experience do not warrant what Mr. Bateman has said, that great inconvenience arises from the use of water-closets. When water-closets can be carried out successfully in small agricultural towns, I think there is no doubt that they can also be adapted to large towns. In a letter from Alnwick on this subject, a gentleman tells me that they have 900 water-closets fixed, and a number of them have been in use for seven or eight years; and, during that period, there has been little or no derangement. Most of them are very little the worse for wear; a few have had to have new washers, which is only a simple matter, and makes them as good as they were when fixed. There has been little trouble with the inhabitants in keeping them clean. When there has been any difficulty, the parties have been fined; but they have only had two or three cases since the sanitary works came into operation. Altogether, their works, up to the present time, have proved a complete success, and the people seem much satisfied with them. They have plenty of water, and the works are acting admirably. I have also a similar letter from Lancashire, in favour of the water-closets. I know that the water-closets are not abused by the poorer classes; I mean, in respect of water.

By the CHAIRMAN: Many of the water-closets have been fixed to privies, and some of those are out of doors. Notwithstanding that, we do not find any inconvenience from frost. The effect of this bill, if it is passed, will be, that the poor in Blackburn will be prohibited from having water-closets.

Mr. PAGET: Will you allow me to ask you what effect your evidence has for and against this bill—how it bears upon this subject?

Witness: Well, I think it has this effect—the first portion of my evidence will show that, if this bill is passed, and if these works are carried out, Blackburn will be shut out from acquiring its present supply of water; and, secondly, if the clauses are passed, Blackburn must for ever remain behind the rest of the country in a sanitary point of view, on account of the great expense.

Mr. PAGET: But, are you not aware that this bill is a bill for increasing the supply of water in Blackburn?

Witness: I am aware that it is a bill for increasing the supply in the five out-townships, and I consider that those townships taken in will be more than an equivalent for the water that will be increased. There are 300,000 water-closets at work in London, which has had some effect upon the Thames; but, where it is a question of fouling your rivers and purifying your houses—if there is no escape between the two—I say, purify the latter, and foul the former. I think it is very objectionable that you should have an open reservoir, as you have it at Blackburn.

Cross-examined by Mr. PAGET: The effect of the impurities from the workhouse, would be to contaminate the reservoir. I cannot speak at the present moment of the exact size of the Fishmoor reservoir. The reservoir is alternately covered with water and alternately exposed to the action of the sun's rays, which is the case with the reservoirs from which Liverpool and Manchester are supplied, but not to the same extent. I give it as my opinion that the corporation ought to have these works. At the same time, I do not think that the corporation ought to supply the out-townships. I am informed that there are plenty of means for supplying them other than by those works.

Re-examined by Mr. JONES: I know that the Fishmoor reservoir is 40 feet deep in some places. I know that men of science have entertained opinions as to whether the impure state of the Thames was or was not deleterious to the public health. But, as I said before, where the question lies between fouling the river and having your house purified, I say foul the river. I do not think that those out-townships should be served to the detriment of Blackburn, for I do not believe that the present gathering-ground is more than will serve Blackburn proper.

Mr. KEANE said he had now to bring before their lordships the case of Mr. Hindle, who was the owner of an estate near Blackburn. On this estate there was a mill, which had been at work for many years: there was another in course of erection, and a number of cottages, the water supply of which would be materially affected by the passing of the bill as it now stood. The estate was watered by two brooks—the Higher Croft brook and the New Field brook, both of which would be intercepted if the proposed scheme was carried into effect. When the original bill of the company passed, no claim for compensation was made by Mr. Hindle, although a drainage-ground of 69 acres was taken from him; and the company now came before Parliament with another bill, without making any provision for his protection. They said, "We will take the whole of your drainage-ground and give you 60,000 gallons of water a day, because we think that is sufficient for you." The committee, however, would not be likely to sanction such a thing as that. The promoters had not called a single witness to prove what would be a sufficient supply for Mr. Hindle, and yet they took upon themselves to say "We will only give you 60,000 gallons a day." All that the promoters intended to give Mr. Hindle was one-ninth of a cubic foot per second; but he (Mr. Keane) should call witnesses who were well acquainted with the facts, and he trusted their lordships, when they heard their evidence, would be of opinion that he had established a right to the half of a cubic foot per second, if not at least to one-third.

Mr. *Richard Ratcliffe*, examined by Mr KEANE.

I am a surveyor, carrying on business at Blackburn, and have been so for the last twenty years. I have made a survey and plan of the property of Mr. Hindle, and here it is [producing it]. There are two main streams running over that estate, the Higher Croft brook and the Newfield brook. They are both at a little distance above the mill. I know the proposed reservoir at Fishmoor estate, and I have estimated that the water collected on 122 acres of Mr. Hindle's property would flow into it. About 69 acres of Mr. Hindle's land was taken formerly, so that the two together will make 291 acres. That is the portion of the drainage-ground which will be taken by this company of Mr. Hindle. The whole number of acres that supply water for this estate are 557 acres. The Higher Croft brook will be intercepted by the new reservoir, and the new catch-pipes will intercept the Newfield brook. I have not made a calculation as to the exact quantity of water that is required for domestic purposes in this estate.

Cross-examined by Mr. PAGET: I assume that all this land between this pink border [pointing to the map] is taken in some way or other by the company. I attribute a catch of 222 acres which would be taken by the proposed works.

Mr. PAGET: Mr. Bateman has been examined, and has given the number as 170. Can you account for that difference in the estimate between you and Mr. Bateman?

Witness: I cannot.

Mr. *Laurence Charnley*, examined by Mr. KEANE.

I am the occupier of the Newfield House Mill on Mr. Hindle's estate. I have lived on the estate about seventeen years, and have known it about twenty-five. We have a steam-engine in our factory, and we are putting up a spinning-mill which will require an additional supply of water. The Higher Croft brook is about a quarter of a mile from the mill. It supplies the mansion and the farm-house of the Higher Croft estate, and supplies no portion of water for the Newfield estate, except for the use of the cattle. The Newfield brook enters into Hindle's land about half a mile from the mill; and, supposing the water from that brook to be impounded, about 60 or 70 acres of the land would be deprived of water. There is a farm called Oldham, and some cottages below, which would lose their supply of water. We have two reservoirs at the mill, and I have never as yet known them to fail us. On the estate there are other sites fit for erecting mills.

By Mr. PAGET: We use the water for condensing purposes. I have not estimated the exact quantity that we want.

Re-examined by Mr. KEANE: We shall require an engine of 20-horse power for the new mill.

Mr. *Homersham*, examined by Mr. KEANE.

I am a civil engineer and a member of the institute of civil engineers, and have had considerable experience in all matters connected with the profession. I have examined the estate of Mr. Hindle and the plans of the company connected with their proposed Act of Parliament. I have obtained my information from the parliamentary plans. By the first bill of this company the water-drainage on 69 acres of land, on Mr. Hindle's estate, was diverted. The effect of the present works would be to divert 222 acres. The quantity of water which can be obtained from that area would vary in different years; but, taking it at an ordinary season, I estimate it at something like 446,000 gallons a day. I have not made the calculation how much there would be represented in a cubic foot per second in the twenty-four hours; but, I should say it would be something like three-quarters of a foot, that is taking into account the 69 acres previously taken up. I take off for the 69 acres about one-fifth. The quantity of water that ought to be delivered for the working of those mills on Mr. Hindle's estate, is about 250,000 gallons a day, about four times as much as is proposed by the company. In my opinion, the proposition of one-ninth of a foot per second is not sufficient for Mr. Hindle.

Cross-examined by Mr. PAGET: I cannot say what the rainfall of the Manchester and Woodhead districts were last year, but I can bring you that of the latter, to-morrow. I do not think it is fair to take only the rainfall of two years. If you want to get at a correct estimate, you ought to take a series of years. Assuming the rainfall to be 33 inches, I think you would get in this district something like 24 inches down the stream. I know there is a difference between Mr. Bateman's estimate of the catchment and that of Mr. Radcliffe; but, I agree with the latter, that the average is 222 acres.

Mr. *Glynn*, examined by Mr. KEANE.

I am an assistant to Mr. Homersham, and aided him in getting out this plan. We took our estimates from the Ordnance map, which I assume to be correct.

WEDNESDAY, APRIL 24.

Mr. *Homersham* was recalled, and gave the rainfall of the district of Woodhead, for eleven months of the year 1855, as 25½ inches, and for the same length of time in 1856, 34½ inches. In the year 1857, for the whole twelve months, the rainfall was 23½ inches; in the year 1858, it was 37¼; in 1859, 53⅝; and in 1860, 66½.

Mr. *Bateman* was also recalled, and stated that there was a small stream marked on the old plan of the original scheme, which they had no objection to convey to Mr. Hindle. It ran down the side of the road from Blackmoor to the Guide; it then turned into a field by a place called Oldham. There would be no difficulty in carrying that stream to Mr. Hindle, which was about 14,000 gallons a day.

Mr. *Homersham:* It is a little over a gallon a minute. It is a spring, rather than a stream, where the cottagers go to get water.

The CHAIRMAN: After hearing that, do you adhere to your opinion that it would be ten times that amount?

Witness: Yes, I do, my lord. Knowing what the area is, I do not think it can be less than ten times the amount Mr. Homersham makes it. I do not consider that Mr. Hindle would be worse off, in respect to the water supply, than any of the other millowners. I may say that, in this scheme, we have treated all parties alike, in consideration of their rights.

Mr. KEANE: There seems to be a difference in the quantity of acres, and we think you have made a mistake in your calculation.

Mr. *Homersham* handed in the map, and the witness, after looking at it, said: I see where they think the difference lies; but my impression is, that a large portion of this [pointing] is not included in the area.

Mr. *Homersham* and Mr. *Bateman* examined the map together for a short time, after which the latter gentleman said there was only a difference of about 14 acres between them.

Mr. PAGET said he had now to submit the case as it stood to their lordships, and he could say, most clearly, on the part of those he represented, that they had every desire to meet Mr. Hindle's case in the fairest and most liberal manner. His friend (Mr. Keane) he was sure, would give him credit for sincerity, when he said that there was no foundation for the imputation that he had been instructed to make, that the promoters of the bill were disposed to deal harshly or unfairly with his client. They were desirous, in perfect good faith, to preserve to Mr. Hindle an equivalent for all those rights he now enjoyed, and which they were compelled to interfere with for the interests of the town. As a guarantee of that, he might remark that they were quite willing to convey to Mr. Hindle that small stream which had been spoken of. The question, then, was—what proportion of the rainfall of the district Mr. Hindle was entitled to claim? He was happy to say that, with regard to the area, the difference between the two engineers had become so very small that he did not think it worth his while to detain their lordships upon it. As regarded the rainfall, Mr. Bateman spoke of it from distinct observation—from gauges taken close by; and he might say that no successful attempt had been made to attack his accuracy. Mr. Homersham spoke from theoretical idea, and not from observation and estimation of the district—in fact, he had made no observation whatever upon the actual rainfall of the district, so that there could be little doubt which of those two gentlemen's evidence their lord-

ships would think worthy of their attention. With regard to the proportion of rainfall to which Mr. Hindle was entitled, the promoters adhered to the same quantity as that which they had given to all other millowners—that was to say, one-third of the available supply—in consideration of which they proposed to take the other two-thirds for the use of the population of the town of Blackburn; and the universal decision of the Legislature warranted him in saying that that was a fair and beneficial arrangement. He could assure their lordships that they were disposed to meet him as fairly as possible. They did not wish to trench upon his rights, but to consider them as equitably as they could; and, when he told the committee that, he thought they might leave his case in their hands. The other opponents were the corporation of Blackburn, and it really appeared to him that they had wandered a considerable distance from what appeared to be the real question at issue. The company wanted water for the purpose of supplying the towns of Darwen, Witton, and other places, and they could only do so by taking that portion of the district which was available to them. Many attacks had been made upon that scheme, but how did it originate? Mr. Bateman could tell them that, when he was consulted, he submitted three distinct schemes to the company; and, after they had all been considered, the present one was selected. It had been said by the opponents of the bill that the water, according to the proposed scheme, would be fouled by gas tar and other impurities; but no one knew better than their lordships that, if anything of the kind was done, the company would have their remedy by indictment. It had been stated in evidence that, if the bill passed, the inhabitants of Blackburn would be prohibited from the use of water-closets; but he found that the company would be compelled to supply water to one water-closet at least free of charge, for the bill compelled them to supply water for all domestic purposes, and the intention of the Legislature was—that all persons should have a right to water for domestic purposes before any persons had a right to it for anything else, and "domestic purposes" was defined in this way: That they should have sufficient water for one water-closet; that was to say, that the inhabitants were entitled to the use of water for one closet without any extra charge. Of course, the company could not compel them to put up water-closets. It was for the corporation to do that. No water company had the power to say whether water-closets should be used or not. If a person chose to have two or half a dozen closets, then he must pay the company extra; and it was only fair that they should be paid. The question had been raised that those out-townships ought not to be supplied; but, assuming there to be a street in which one side of it was in Blackburn, and the other in Witton, the inhabitants on one side would be supplied with water; but what would be the position of the other?

Mr. JONES: You have no right to put that. The evidence distinctly disproves any such hypothesis.

Mr. PAGET said he would ask their lordships to imagine two houses closely adjoining, only the one happening to be in Blackburn, and the other in Witton—what would be the difference as to the right of one of those to be supplied with water, and the other not? Was it possible for any one to say why one man living in house "A" should be supplied, and another man living in house "B" should not? The company were going into those out-townships to get water—they were going to take the rainfall upon Witton, the rainfall upon Lower Darwen, and upon Livesey; and could it be said that they could fairly deny those townships a share of the benefit that they gave to Blackburn? The municipal town of Blackburn being defined, and the corporation of Blackburn having no authority beyond that defined line, he thought they were about the most unfit persons that could possibly be suggested to have the care of the water-works. When the promoters of the bill asked for power to take the rainfall upon those out-townships, they were only performing a duty which was incumbent upon them, by proposing to supply these places with water. With these facts before him, he had to ask the committee for the extension of a scheme which the Legislature sanctioned in 1845. The scheme was then sanctioned, proportioned to the then wants, and the prospective wants of the district; but the rapid increase of the population and capital of the place, and, of course, a greater consumption of water, had advanced at a rate which, their lordships were perfectly aware, had been far greater than that which the most sanguine upon the subject could possibly have anticipated; and, under these circumstances, the company solicited a power to give to that community one of the first necessities of life.

The room was then cleared; and, on the return of the parties,

The CHAIRMAN said: The committee have decided that it is expedient to proceed with the bill; they have also decided that the company must give as compensation to Mr. Hindle, 1/5th of a cubic foot per second, instead of 1/9th as proposed by the company, or of 1/3rd as suggested by Mr. Hindle.

Mr. JONES: Is not the preamble subject to any modification?

The CHAIRMAN: No; the preamble is passed.

A clause was inserted making it incumbent upon the company to supply water for one closet immediately connected with, or adjacent to, any house; and also for one bath, not exceeding 80 gallons.

[*We are unable to find room in the present number for our report of the proceedings on the Stockport Water Bill.*]

(*Before the Duke of* MONTROSE, *Chairman; Viscount* FALMOUTH, *Viscount* HOOD, *Lord* DIGBY, *and Lord* RAGLAN.)

HUDDERSFIELD GAS BILL.

MONDAY, MAY 13.

Mr. HOPE SCOTT, Q.C., Mr. BURKE, and Mr. LOCH, were counsel for the promoters; and Mr. MEREWETHER, Q.C., and Mr. PICKERING, Q.C., for the improvement commissioners of Huddersfield, petitioners against the bill.

Mr. BURKE, in the absence of Mr. Hope Scott, opened the case. He said it appeared to him, that the objects to be obtained by this bill were so simple, and the provisions of the bill itself so obviously fair and just that, after the inquiry which it had already undergone in the House of Commons, where amendments and clauses were introduced, it would be only occupying their lordships time unprofitably, if he were to attempt, at any great length, to address them in his opening speech. The whole point at issue was this:—The company came before Parliament, for the first time, to be incorporated as a gas company; and the only petitioners against their bill were the Huddersfield improvement commissioners, who were anxious to become possessed of the works of the company, and to manufacture and supply gas to the town. Their object in thus opposing the promoters, and their whole effort would be directed to depreciate the value of the property of the company, in the hope that hereafter they might be able to purchase the undertaking cheap. He believed he was not wrong in stating that this was the entire object of the opposition; and, if he were right in that conclusion, he certainly should not be justified in going at any great length into the case, especially as he had already stated that the design of the bill itself was so simple and reasonable. The preamble of the bill stated that the Huddersfield Gas Company was established in 1821, as a private company or copartnership, with a capital of £3400 in £20 shares, with powers of increasing such capital as occasion might require. In 1846, the company were completely registered under the Joint Stock Companies Act, 7 and 8 Vic., c. 110, by the name of the "Huddersfield Registered Gaslight Company;" and, by their deed of settlement entered into for the purpose of such registration, dated 17th November, 1845, and which superseded the recited articles of agreement of the 2nd of April, 1821, their capital was stated to be £16,000; and it was agreed that, if at any time or times thereafter it should be considered advisable by the board of directors to raise more money for the company, or for extending its business, it should be lawful for meetings of the company, as therein set forth, to enter into resolutions to do so. The company were subsequently incorporated under the Joint Stock Companies Act, 1856. The preamble further stated that the company had erected gas-works, and laid down mains and pipes through the streets and roads of the said town and the neighbourhood thereof, for the purpose of supplying the same with gas, and had hitherto supplied gas to the said town and neighbourhood accordingly; that, since the first establishment of the company, the population, mills, manufactories, and other buildings of the town and neighbourhood of Huddersfield, had considerably increased, and the company had, from time to time as occasion required, invested large sums of money, and constructed extensive works, to meet the increased wants of the said town and neighbourhood, and the sums expended in the construction and extension of the said works amounted to £60,000. Since the first registration of the company, they had created shares to the amount of £23,000; and the present share capital of the company, so increased, amounted to £39,000; the balance between the said sum of £60,000 and £39,000 amounting to £21,000 having been supplied from the profits of the undertaking divisible among the shareholders, and the company were now desirous of creating shares to represent that amount. They also required more capital, and further powers to enable them effectually to carry out their original undertaking, and also to light with gas certain townships and places in the neighbourhood of Huddersfield, and to take, or purchase by agreement, certain lands in the neighbourhood of their existing works for the extension thereof. This was the whole object they sought to accomplish by the bill. When the company were originally established as a private partnership in 1821, gas-lighting was in its infancy, and the company so formed might have been great gainers or losers by the undertaking, it being entirely a matter of speculation. Under those circumstances, they were clearly entitled to make what they could out of their operations. It turned out that the company were successful, and accordingly, as he had stated, they capitalized in 1846 under the Registration Act £16,000. And they were perfectly justified in taking that course. As wise and reasonable men, they were making a considerable sum of money at the outset of their undertaking; there were no restrictions upon them as to dividends or prices, and they said, "Although we are making 10 or 12 per cent. by our operations, we will not divide the whole of that money; we will content ourselves with a lower rate of dividend, and apply a portion of our profits to the extension of our works." They might have expended the whole of their profits, and have called upon their shareholders for fresh capital to meet the necessary extensions. Had they done so, there would have been this disadvantage to the public, that the company would have apportioned dividends to the capital so called up; whereas, upon the profits they expended, they had all along divided nothing. They now sought to capitalize those profits, and the commissioners of Huddersfield, who opposed their bill, desired that the committee should go back to the period of the establishment of the company, investigate all their books, ascertain what their profits had been, and what they had done with them. The company objected, and as he (Mr. Burke) thought, very properly objected to this course. They contended that, up to the present time, they had a perfect right to conduct their affairs in whatever way they pleased. He would mention as proving that the public had not been injured while the company were progressing, they had gradually reduced the price of gas to their consumers, and that at the present time it was being sold at 3s. 6d. per 1000 cubic feet, which was the lowest rate at which it was sold in the United Kingdom. This reduction had not been made *per saltum* for the purpose of appearing well before the committee on this inquiry, but had been the result of successive diminutions in charge, as the company found themselves in a position to make them. The company, as he had already stated, declared their capital in 1845 to be £16,000; and, since the year of their incorporation under the Joint Stock Companies Act, they had continued to pursue the same course of not dividing the maximum dividend, but had been content with a moderate rate, and had employed the remainder of their profits in the improvement of their works, and this practice had been over and over again sanctioned by Parliament. During the past half year, the profits divided had been equal only to 7½ per cent.; although, had the company been incorporated under the Gas Clauses Act, they would have been entitled to 10 per cent. It was only reasonable that a company like this should be allowed to make very liberal profits, inasmuch as undertakings of this kind were attended with considerable risk. In the City of London, very recently, a gas company had been sued for enormous damages for injuries alleged to have been occasioned in the carrying on of their operations. The Huddersfield company, moreover, had never charged anything for the expenses of management; had they done so, during all the years in which they had been established, it would have amounted to a large sum as against the public. They now sought to declare their capital at £39,000, entitled, under the Gas Clauses Act, which was incorporated in this bill, to 10 per cent.; but, with regard to the £21,000 of profits which they had expended, they asked only to be allowed to pay 5 per cent. The fairness of this proposition struck him so forcibly that he was extremely surprised there should be any opposition at all to the bill. If a new gas company were now about to start in Huddersfield, they would have to construct works at an expenditure at least equal to that which this company claimed, and they would be entitled to 10 per cent. upon the whole of it. But, the promoters having for years carried on their operations with risk to themselves and satisfaction to the public, and having, as the result of their successful working, reduced the price of gas to the lowest rate, asked only that they should have the maximum dividend upon £39,000, and that upon the profits they had voluntarily foregone, they should only be entitled to 5 per cent. They would have had no hesitation, on the score of justice, in asking for 10 per cent. upon the whole £60,000; but, the noble lord who presided over committees of this House, had laid it down as a rule of late years that, where companies had expended moneys in extension of their works out of profits, they should not be entitled to the full rate of dividend upon such moneys, but, that they should treat such invested profits as a loan to the undertaking. It was not for him (Mr. Burke) to quibble at the decision of the noble lord as it applied to in-

corporated companies, who thus exceeded the powers of their Act; for certainly it seemed reasonable that such capital should be placed in the same position as that which had been sanctioned by Parliament. But this company had never had an Act of Parliament; they had never had any of the powers and privileges which Parliament was in the habit of giving to incorporated companies; they had simply been registered under the Joint Stock Companies Act, which had reference only to the internal arrangements of companies, and had nothing whatever to do with the public. When this bill came before the House of Commons, the preamble stated that the promoters had expended £28,000 out of profits, and the sum they sought to capitalize was not £60,000 but £67,000. It was only after a long and elaborate inquiry in that House that the committee saw fit to reduce the capital, and to pass the bill in its present form, with which, however, the committee were satisfied. The object of their opponents, in the other House, was to draw them into a statement of the whole of their affairs, during the whole of their past history, and to diminish the value of their property. In the year 1859, the town commissioners of Huddersfield sought to become purchasers of these works, and the company were not unwilling to sell them at their own price. The commissioners employed a most able gentleman to value the undertaking, whose estimate amounted to no less than £89,200, including the goodwill, estimated according to the company's annual revenue. Since then, the company had expended a large sum of money upon their works. Now, assuming that, in 1859, the company had been dealing, not with the commissioners, but with another company, and had disposed of their works to them for £89,200, the new company would have been fully entitled to come to Parliament now, and say, "We ask to have that £89,200 declared as our capital." But the company at that time offered to sell their undertaking to the commissioners for £63,000, the reason for which was obvious. The purchase-money was to be secured upon the borough-rates, which would have been equal, or almost equal, to a Government security; and, therefore, it was not surprising that the shareholders, knowing that there was always agitation on the part of the commissioners, should be willing to take so moderate a sum, well secured, in preference to retaining the works, and incurring all the risks of the undertaking, although really worth the larger sum which the gentleman engaged by the commissioners had valued them at. The commissioners jumped at the bargain, and, with only two dissentients, agreed provisionally to purchase the works for £63,000. But, there was a gentleman connected with the press in the town, who was the advocate of "popular rights." This gentleman wrote in his paper, and made speeches, and induced the ratepayers to hold out, in the hope that in the end they would get the works much cheaper. The company, therefore, liberated the commissioners from their bargain, and found themselves again in the position that they were. They were not very much surprised, when they came into the House of Commons with their bill, to find that the opposition of the commissioners was mainly directed to the question of the capital invested in the works. There was an allegation in the petition, that the commissioners were desirous to purchase the undertaking, and they asked Parliament to insert in the bill a provision that the works should be sold to them for £40,000. The promoters had inserted a provision in their bill, that they should have power to sell to the commissioners, and that the commissioners, by agreement, should have the power to purchase; but they found that this concession on their part only led to a more hostile opposition on the part of the commissioners, by which they sought, in every possible way, to depreciate the value of their property. The company, therefore, resolved to take those clauses out of the bill, and so put an end to the agitation which existed on the subject. In the House of Commons, after having drawn the committee into this long inquiry as to the affairs of the company (and he was bound to say that he never saw an inquiry conducted with so much patience and attention on the part of a committee), the commissioners, finding that the capital was fixed at £60,000, thought fit to retire in dudgeon, and stated that they should oppose the bill in the House of Lords. They now came forward, and complained that, during their absence, the bill was altered. But they might have remained; and their agent, acting for some parties in the town, did remain, up to the close of the inquiry, and sought to introduce clauses in the bill. He would call their lordships attention to this fact, that there were no petitions against this bill from the consumers of gas in the town. There were some in the House of Commons, and their representations were heard. They remained there till the close of the investigation, and inserted such provisions as they thought necessary in the bill for their own security. There being no petition now from the consumers, he thought he was entitled to consider that, so far as they were concerned, they were satisfied with the bill as it passed the House of Commons. The only petitioners on this occasion were the commissioners of the street pavements, who were consumers of gas only as the managers of the public lights of the town. But, inasmuch as these gentlemen thought it necessary in the House of Commons to be fortified by a petition from the consumers, and there was no such petition before their lordships House, it was fair to presume that the consumers were satisfied, and that the commissioners appeared here only as the representatives of the public lights, and that their object was no other than to depreciate the value of the company's property, in order that they might come in and buy it cheap. He (Mr. Burke) was not now about to raise the question whether town commissioners should be manufacturers of gas or not, because the question was not raised by the bill. The bill contained no provision for disposing of the works to the commissioners, and therefore he need not waste time in the inquiry. If it had done so, he should have had plenty of evidence to show their lordships the inexpediency of giving town commissioners the power to undertake a risky business by means of the local rates. The effect of such an arrangement always was that they charged a large price to the consumers of gas, who were thus taxed for the general benefit of the public. Within the last few days, the corporation of Bolton had sought for power to take the gas-works of the company in that town by compulsion, but Parliament had refused to grant it. He would briefly state why the company required an Act of Parliament. During the last few years, there had been decisions in the courts of law to the effect that unincorporated companies had no right to open the streets for the purpose of laying down their mains, and might be indicted for so doing; and the promoters did not think it proper that they should continue any longer at the mercy of the commissioners. The advantage to the public of their incorporation was that, whereas the company were at present under no restrictions as to dividends, price, or purity, they would then be brought within those provisions which Parliament deemed essential for the regulation of such undertakings. Hereafter, if the Act were obtained, the company could not charge what they liked; they must supply gas at a certain price, and of a certain standard of purity; and they must conduct all their affairs under those wholesome restrictions which Parliament thought proper to insist upon. The maximum price inserted in this bill was 4s. per 1000, which was allowing the company a small margin to meet those contingencies to which they were continually exposed. The protection to the public was, that gas could not be sold higher than at a certain rate; and, under no circumstances, could the company divide more than a certain dividend. Whenever that dividend was exceeded, any consumer could apply to the quarter sessions, by which an auditor would be appointed to examine the company's accounts; and if, as the result, it should appear that the company were dividing more than they ought, the price of gas must be reduced. After the long inquiry which took place before Parliament last year with respect to the supply of gas to the metropolis, the illuminating power was fixed at 12 candles—in the present case, the standard was 14; in the metropolis, the maximum price was fixed at 4s. 6d.; here it was 4s. To afford the high illuminating power required by this bill, common coal could not be used alone; a large proportion of cannel must be employed, which was more costly to the company in its purchase, and was of little value as respected its residual products. The promoters desired to increase their capital to £100,000, because they found it necessary to extend their works. In the House of Commons, they sought to increase it to £120,000; but the committee of that House saw fit to fix it at the former sum, and with this stringent clause, that the shares should be sold by auction; so that, if the company were paying a large dividend, these new shares would have a considerable value in the market. The whole of the premiums realized by their sale were to be appropriated to the extension or improvement of the works of the company, or in paying off money borrowed or owing by the company; and were not to be considered as part of the capital of the company entitled to dividend; so that the public would get the entire benefit of the transaction. He (Mr. Burke) was bound to say that, in the whole course of his experience, which in reference to bills of this class was not a limited one, he had never seen a measure which was so liberal, in all respects, to the public as this was. He now came to deal with the petition of the commissioners, and he would state, in passing, that, though these gentlemen were seeking to purchase the works of the company for £40,000, they were rating them at a value far above that. The petitioners stated that they were the commissioners of pavements and surveyors of the highways, and that the company sought to break up the pavements within their jurisdiction, without making any provision for compensation, except in case of actual damage. In reply to that, he would remind the committee that the bill incorporated the Gas Clauses Act, which made ample provision for the protection of the public highways in this respect; and what further compensation could the commissioners require? They then stated that they had parliamentary powers to supply gas not only to the public lamps within their jurisdiction, but also to private consumers within the limits of the Act. If so, why did they not exercise those powers? The truth was, their jurisdiction extended only to some 1200 yards from the market-place; and, though they had the power they stated, they found great difficulty in exercising it. They then stated that they opposed this bill in the House of Commons, where the capital of the company was fixed at £100,000, which sum included a fictitious creation of shares to the extent of £8000, upon which no money was ever paid by the shareholders, and a sum of £2000, which had been returned to the shareholders. The object of this allegation was, to induce the committee to go back to the establishment of the company in 1821, and inquire into every item of their expenditure, with the view of seeing whether, in any one year, they had charged to capital anything which properly belonged to revenue. The next allegation was, that the mode in which the company had kept their books rendered it impossible to see what expenditure had been made upon capital, and what upon revenue account; and, as the company refused to allow an accountant to ascertain these facts by an investigation of their affairs, they were not in a position further to oppose the bill in the House of Commons, the decision of which House was unsatisfactory to them. Now, nothing could be further from the truth than the statement that the company refused to allow an investigation of their accounts, because the whole of the long inquiry which took place in the House of Commons arose out of the good-natured indiscretion of the company, in allowing the commissioners to inspect their books; and it was by reason of that investigation that the opponents of the bill were enabled to organize their opposition on those minute details which occupied the attention of that committee. The principal fact upon which the commissioners then relied was, that the company, in the conduct of their affairs, had appointed an auditor to look into their accounts, which auditor had suggested, for their own guidance, that those accounts should be kept in another mode. Having got access to this document, the commissioners relied upon it, as satisfactorily proving that the books of the company were not properly kept, although, as it turned out, that report referred only to the accounts of one half year. The petitioners then alleged that, after they had withdrawn from opposing the bill in the House of Commons, many clauses, very inequitable in principle, were introduced—why did they not remain, to see after their own interests?—and that other clauses were introduced, to get rid of the opposition of certain parties—they did not say that these clauses were objectionable—and that the company had entered into certain contracts, to save further opposition—but they did not say that those contracts referred to their district. Their next allegation was that, in the bill as introduced into the House of Commons, there were clauses providing for the transfer of the company's undertaking to the commissioners, the whole of which, after the committee had declared the preamble of the bill to be proved, were struck out in the absence of the petitioners. He had already told their lordships why that was done; and would only add, that it was with the full concurrence of the committee. The petition then went on to state, that the company ought not to be allowed more than 5 per cent. upon their capital, which was a sufficient amount of interest for their risk and outlay; that they believed there was not more than £27,750 of share capital embarked in the undertaking at the present moment; and that £13,750 was raised by new shares, which were not offered to the public; whereas, it was sought to be declared by this bill, that the capital of the company should be £100,000; and that, if this were allowed, it would be putting into the pockets of the shareholders £21,000, upon which not a sixpence had been paid. They asked, therefore, that the capital should not be fixed above £30,000, and that the dividends should be limited to 5 per cent. They complained that the company sought to supply gas beyond the district at present supplied, which would be prejudicial to any extension of the municipal district of the petitioners; that the bill did not provide sufficiently for testing the quality of the gas; that it empowered the company to charge for service-pipes, and also to supply gas-fittings, which would be very prejudicial. There were many other allegations, such as, that there was no provision in the bill requiring the company to lay mains, except where they liked; that, inasmuch as the preamble was passed in the House of Commons when the clauses in reference to the sale of the works of the company to the commissioners was in the bill, those clauses ought to be reinserted. The petitioners then stated that, in the year 1859, the company agreed to sell their works to the commissioners for £63,000, and provision was made in

the agreement for sale that a certain portion of the purchase-money should remain out on debenture at interest; but, in consequence of the large fictitious creation of shares, and the circumstance of an intended reduction in the price of gas, not being known to the commissioners, the undertaking was not worth so much, and they were informed that their value was not more than £35,000. All these allegations had but one object—that of depreciating the value of the undertaking for the purpose of purchase. The company took issue with them as to the structural value of their works; but, even admitting it was as stated by the petitioners, and that a new company, about to start such works, could erect them at that price, was it fair towards an old company, which had been in existence for many years, and supplying the inhabitants satisfactorily, to assign to them only the price at which works could be erected at the present time? The company were able to show that they had actually expended a much larger sum than £63,000, and that the capitalizing of profits, so expended in extension of works, had repeatedly received the sanction of Parliament. But he objected to go into the inquiry which was pursued in the House of Commons, as to the price at which the works should be sold to the commissioners, because there was now no provision in the bill by which they could become the purchasers. The parties mainly affected by this bill were the consumers of gas, who might have urged that, if the capital of the company were fixed at £60,000, they must maintain a high rate of charge for gas, in order to pay the shareholders the dividends authorized to be taken. But the consumers were satisfied. All these matters were investigated in the House of Commons at their instance; that which the company had put in at £67,000 was reduced to £60,000, and clauses were inserted in the bill to meet the requirements of the consumers. Such being the case, the consumers being satisfied, and not now appearing in opposition, their lordships were not to be launched into an inquiry of what the company did as a private partnership, the only object of which, as he had remarked, could be to seek to depreciate their works to enable the commissioners hereafter to purchase them. The bill, as it stood, was a fair and equitable one to the consumers of gas, who had obtained in the House of Commons all that they felt it necessary to ask for, and he trusted their lordships would decline to embark upon that long and needless investigation.

Mr. *Burgess*, examined by Mr. BURKE.

I was appointed manager of the Huddersfield Gas Company in November, 1856, and am familiar with the whole affairs of the company since that date. I have also gone through their books prior to my connexion with them. The company was established in 1821, with a capital of £3400. They have called up additional capital since then. They were registered under the Joint Stock Companies Act in 1846. From their establishment to that period, £8000 had been called up. They had also laid out large sums of money from the profits of the undertaking. The capital, in 1846, was fixed at £16,000. In 1843, a bonus of £2000 was divided among the shareholders, which was at the rate of £5 per share. The total outlay upon the works from the profits of the undertaking from 1845 to the present time is £23,338, and they also borrowed £5000 on mortgage, which has been paid off. The price of gas has been gradually reduced to its present rate of 3s. 6d., with a discount of 25 per cent. to wholesale consumers. I know of no town where the price is so low. The works are in a state of great efficiency, and are more than adequate to the existing supply. It is desired by the inhabitants of the surrounding townships, that the supply should be extended to them, and further capital will be necessary to enable us to do it. [Witness was examined as to the creation of shares and dividends, and gave similar evidence to that given by him before the committee of the House of Commons.]

Cross-examined by Mr. MEREWETHER: After the £2000 was paid to the shareholders as a bonus in 1843, the £8000 scrip held by the shareholders was called in, and exchanged for scrip representing £16,000, no money passing on that occasion. Since the last sale of shares by auction, the new shares created have been issued to existing shareholders at par. The price of gas was reduced to 3s. 6d. on the 1st of January, 1860.

Re-examined by Mr. BURKE: The sale of shares by auction was for the purpose of getting as much money as we could for the purpose of the company. When the capital was declared at £16,000, the company had expended out of profits the difference between that sum and the subscribed capital.

Mr. *Edwin Unwin*, examined by Mr. LOCH.

I am the managing director of the Sheffield Gas Company, and prior to that I practised as a public accountant. The Huddersfield Gas Company called me in officially to report upon the state of their books. I have gone over the whole of their accounts from the establishment of the company in 1821, to the present time, for the purpose of giving evidence on this occasion. I find, as the result, that the sum of £67,000 has been expended by them in permanent works. [Witness gave at length the details of expenditure, and creations of shares, as given in evidence in the House of Commons.] Since my previous examination, I have directed further attention to the accounts. I remember some questions having been put to me in reference to a sum which it was said should have been written off for depreciation. It was held, on the other side, that there should always be a depreciation-fund in works of this description. I said then that the only value of a depreciation-fund, where the works of a company were properly kept up, was for the purpose of equalizing dividends; and that, if they honestly kept up their works, there was no other necessity for such a fund. I had not then had time to go into the subject; but I have since found that the Huddersfield Company have set apart every year a considerable sum for the support of their works. I have omitted the first ten years of their existence, because the company were then in their infancy. During the last thirty years, I find that the total expenditure for repair of works has been £19,965. 2s. 6d., being after the rate of 4·7 pence per 1000 cubic feet of gas manufactured. I have taken it in that way, because it depends upon the extent of business done as to what should be the amount of wear and tear. That £19,965 has been charged to revenue throughout, and forms no portion of the trade capital which the committee are now asked to award to the company. I consider that that amount is amply sufficient for the maintenance of the works. It is over and above what has been applied to the purposes of extension. After having ascertained this fact, I have applied it to, and tested its efficiency by, the estimate given by Mr. Stevenson on the other side. The principle, which he suggested as the proper principle to apply in order to ascertain the sufficient amount of expenditure, was this—he said, for the wear and tear of plant, machinery, and tools, 1s. per ton, upon the weight of coal carbonized, should be taken; and also 40s. per mile upon the 31½ miles of mains. For renewal and reproduction, he said 1½ per cent. should be taken on the value of the works when new. I have reckoned up what the expenditure in support of these works would have been, taken in the manner indicated by him, and the result is £19,045· I find that, as regards salaries, the company have been working in a most economical manner. The directors have had no remuneration whatever.

Cross-examined by Mr. PICKERING: The amount of money expended on repairs forms no part of the £67,000 which was originally inserted in this bill. After the return of £2000 to the shareholders in 1843, the company paid 10 per cent. dividend upon the whole £8000, as though there had been no deduction; but they had received at that time £2161 as premiums upon the sale of shares. When the capital was declared at £16,000 in 1845, the dividends were paid upon that amount, though, deducting the £2000 and the premiums, there had been only £6000 received from the shareholders. The books show, year by year, the amount of profit made, but do not show distinctly the sums expended in renewals and repairs; and it was because of that, I was called in to investigate them. I have endeavoured to ascertain what they are from my knowledge of what is generally sufficient for the purpose. I agree with the auditors in their report that, if the pipes were for extensions, they should be charged to capital; but, if to replace others, they should go to wear and tear. The same remark is equally true in reference to meters. I should have no objection, for the purpose of this inquiry, to go through the books of the company with the accountant on the other side, in order to show how I arrived at the £19,965.

The CHAIRMAN: How do you ascertain the quantity of gas made?

Witness: The company have no means of ascertaining the quantity of gas which was made in the early stages of its existence.

The CHAIRMAN: Is it possible, in any case, to ascertain it? I happen to be a gas maker, and I believe it is not.

Witness: I have taken the quantity of coals consumed, and the amount of money received, and have made a calculation in that way, allowing a reasonable quantity for waste, from what I know by experience as to the average leakage. The leakage sometimes amounts to one-fifth of the gas made. I have examined the works of this company; they are very good works, and I consider they are worth the money spent upon them.

The CHAIRMAN: In fact, you say they are very excellent works, and have been kept in good repair, so that there should not be any depreciation upon them.

Witness: I find, in both respects, they are worth the money.

Mr. PICKERING: Can you give me the details of the expenditure of the £67,000, under, say, half a dozen heads—viz., pipes, land, buildings, retorts, machinery, meters, and gasholders?

Mr. LOCH: If these heads correspond with the books, it might be done; but, if not, it is impossible. The object of this inquiry is to ascertain the expenditure upon the works during the last thirty or forty years, and we put a credible witness in the box, who must be believed on his oath. If we are to go into all these details, it is to go over again what this gentleman and his clerks have been doing for many weeks. My friend may question his judgment, but it is unreasonable to take half a dozen heads arbitrarily, and ask to have the expenditure classified under each.

Mr. PICKERING: Here is a private company, who come to Parliament for the first time, and ask to be allowed to charge a per centage upon a large amount of capital. Surely, it is of the utmost importance that these questions of capital should be definitively settled; and I have a right, not having had the opportunity of testing the books, to ask this gentleman how the amounts are made up?

After some discussion on this point,

The CHAIRMAN said, if the learned counsel asked for the details in any one half year, he could have them; but he could not go through the whole forty years of the company's existence.

Witness, in answer to Mr. PICKERING, went through the various items of expenditure in one-half of the year 1843, and explained what had been charged to permanent stock, and what to current expenditure.

Re-examined by Mr. LOCH: The books of the company were not kept in the usual way at first; and I find, in some cases, items were charged under the head of capital expenses, which were afterwards struck out and placed under another head. With the exception of £4000, of which £2000 or £3000 was for new meters—which might properly be considered as capital—the items charged in that account are correct. That £4000 was expended during a period of ten years, in which there was nothing charged to capital; and the only extensions were by laying out money from revenue. At the commencement of that period—viz., in 1831—the gas-rental was £1800; and, in 1841, upon an average of three years, it was £3300; and this satisfies me that something must have been done in the meantime to extend the works. Besides my investigation of the actual outlay by the company, I have considered what is the structural value of their works, and, in my opinion, it is equal to the amount shown to have been expended. They could not have been erected for a less sum.

Mr. PICKERING applied to the committee for permission to inspect all the books of the company in the interval before the next sitting.

Mr. LOCH opposed the application. He said the commissioners appeared before the committee in their capacity as a public body to protect the interests of the locality; but, in reality, they were would-be purchasers of the works.

Mr. PICKERING said there was a clause in the bill providing for a transfer of the works to the commissioners, but that clause had been struck out.

Mr. LOCH reminded the committee that the commissioners, in their petition, asked to have that clause reinserted; and, surely they were not to be allowed to examine the company's books for the purpose of obtaining information, which might be used against them hereafter.

Mr. PICKERING said the books were in evidence, and he had a right to inspect them. He wished to have the cash-book, ledger, and invoice-book.

Mr. LOCH said no doubt they were in evidence, and they might be examined in the room. If this were a court of justice, the books produced could not be taken away by the other side for examination.

Mr. PICKERING said they might be with the permission of the judge.

The CHAIRMAN: The committee are of opinion that you are not entitled to have the books.

TUESDAY, MAY 14.

Mr. MEREWETHER said the committee decided on the previous day that, though the petitioners might not take the company's books home with them to examine, they were at liberty to inspect them in this room. He now called for their production.

Mr. BURKE said the books were all in the room, and his learned friend might call for which he pleased, if he made any point requiring explanation. But the promoters were not bound to assist the commissioners by letting them fish out a case by a general inspection of their books.

Mr. PICKERING said he was surprised at the objections raised by the promoters to allow their accounts to be examined. The books were in evidence, and any person was at liberty to see them.

Mr. BURKE did not deny that the books were in evidence; but what he urged upon the consideration of the committee was, that the petitioners

were bound to prove their own case, and not seek to establish their allegations by reference to the private documents of the company.

Mr. Loch said the proper time to call for the production of any book was when a witness was under examination, whose testimony bore on the accounts of the company. The gentleman who was now going to be called had nothing to do with the books.

The Chairman: The committee are inclined to confine the opponents of the bill to the books as they are called in evidence. They can then see and examine them; but they are not to have them entirely in their own hands for the purpose of fishing out their case.

Thomas G. Barlow, Esq., examined by Mr. Burke.

I am, by profession, a civil engineer, and have devoted myself specially to gas engineering. I have been engaged in that profession for about thirty years. In 1859, I was called in by the Huddersfield commissioners to give them an estimate of the value of the gas company's undertaking. I then made myself thoroughly acquainted with the character of the works. They are, in my judgment, very well situated for the supply of the town; the site of them was very properly chosen, with reference to the position of the canal, for getting coals and disposing of products; indeed, it is the best situation for the purpose in the neighbourhood. The works are well constructed, and calculated for the supply of the town with gas within the limits of the company's operations. The affairs of the company appear to have been well conducted, the works managed in a very efficient manner, and the manufacture of gas economically conducted. I have seen the works again this year, and my opinion formed in 1859 has been confirmed. In 1859, I made two valuations; one the commercial value of the undertaking, and another the structural value of the works. I assigned as the value of the undertaking to purchase £89,266. That valuation was made on behalf of the commissioners; but I endeavoured to do justice between the parties having no leaning either way. I have heard that the commissioners consider they ought to purchase the undertaking for £40,000; but I do not think that is anything like the structural value of the works. Since my valuation in 1859, considerable sums of money have been laid out by the company on capital account. The present structural value of the works, as estimated by me in February last, was £58.551. The company have a floating capital of £10822, which they require for carrying on their operations. The total value of the assets of the company is £69,372. The capital which they sought to declare in their bill was £67,000; but the House of Commons reduced it to £60,000, which is certainly below the amount invested in the undertaking. In making my recent valuation, I proceeded on precisely the same principle as I did in 1859, when I valued for the commissioners; in fact, I merely added the amount expended upon the works since that time. In 1859, the commissioners, through me, had access to the accounts of the company, as they were not unwilling to negotiate for a sale. The gas supplied by the company is of a high illuminating power; and the price, which is 3s. 6d., is the lowest in that district. I consider that the company have dealt very fairly with the public throughout all their transactions. I am acquainted with the Gas Clauses Act, and am aware that the maximum dividend is limited to 10 per cent., with power to lay by a reserve-fund of 10 per cent. upon the capital of the company. The mean dividend fixed by this bill is about 8 per cent., which is very liberal towards the public. If a new gas company were about to start in Huddersfield, under the provisions of the Gas Clauses Act, they could not offer such good terms to the public as are secured by this bill. I have had some experience in reference to the supply of gas by town commissioners, and I have formed an opinion respecting it. I find that, as a rule, the public are supplied by companies at a lower price than by municipal corporations, *cæteris paribus*. I think it very unfair that corporations should be allowed to become gas manufacturers at the risk of the ratepayers. In such cases, the consumers of gas are often made to pay a higher price, for the sake of assisting the public rates. I am aware that, in Liverpool, the company are authorized to charge 4s. 6d. per 1000 cubic feet; but, under the operation of the Gas Clauses Act, they have reduced their price to 3s. 9d., and that they pay 10 per cent. upon their original capital; but, as the sales of new shares are made by auction, it is not more than 5 per cent. upon the cost of those shares. It is the general practice of Parliament to allow companies to capitalize profits which have been legitimately expended upon their works. In the case of the Imperial Gas Company, they were allowed to capitalize £300,000 which they had thus expended. The Huddersfield Gas Company have been hitherto a private company, without any restrictions, and at liberty to charge whatever they chose. They must have spent a considerable sum of money out of profits, for their share capital does not at all represent the structural value of their works, irrespective of the floating capital embarked in the undertaking. They must, therefore, have obtained capital from other sources. From my examination of the works, I should say that the amount expended beyond the share capital has exceeded the £21,000 which they ask to be allowed to capitalize by this bill.

Cross-examined by Mr. Pickering: I went down to examine these works in April, 1859, accompanied by Mr. Stevenson, the borough engineer of Halifax. We examined some of the books of the company. Any book that we asked for to satisfy ourselves was shown us. I was calledin by the commissioners, to ascertain what was the commercial value of the undertaking, which I proceeded to ascertain by an examination of the income and expenditure. I took the per centage of renewals upon my own structural estimate: it was 1½ per cent. on £45,649, the value of the works and mains, distinct from the meters. That was the value of the station, mains, and services. I estimated the amount of income and expenditure, and capitalized it at 16¾ years purchase. I did not examine the books, to arrive at the per centage for renewal of the actual value of the works. I did not obtain any information from the works, but ascertained it from my own calculations. I took it for granted that the information I received from the company was correct. The only information which I was supplied with was the length of the mains and pipes, and the number and value of the meters. I based my opinion of the value of the works upon my own examination. I estimated the commercial value of the undertaking upon a return of the profits realized in 1858. The income was derived from the following items: 52,207,500 cubic feet of gas sold by meter, at 4s. per 1000, £10,441. 10s.; 1,634,400 cubic feet, sold at 5s. per 1000, £408. 12s.; 918,000 cubic feet, supplied to 596 public lamps, and 16 outside lights, £1042. 12s. 3d.; 94,750 cubic feet, supplied to contract consumers, £18. 19s.

The Chairman: What is the price for the public lamps?

Witness: It would be about 2s. 1d. per 1000 cubic feet.

By Mr. Pickering: There were 2900 tons of coke sold at 6s. 8d. per ton, producing £957. 15s. 2d., and 500 tons of tar, sold at 8s., producing £200 These two items are my own figures; they are estimates of what I conceive the quantity of coal used should produce. The ammoniacal liquor, sold at 8d. per ton on the coal carbonized, was £295. 2s., refuse lime, £70, old stores and sundries, £25; being a total of £13,459. 10s. 5d. That is the ascertained income of the year 1858, with the exception of the two items I have mentioned, and the refuse lime and old stores, which are my own. I cannot say whether we asked the company for copies of all accounts of profit and loss submitted to the shareholders in each year. We put it in the list of inquiries, but they gave no response to it, and we did not press the question further. A great many items of expenditure were supplied to us, but there was no balance-sheet produced; we made our own estimate. The first item of expenditure was 7083 tons of coal, at 7s. per ton, £2479. 1s.; 1770 tons of cannel, 12s. 6d., £1106. 2s. 6d.; 350 tons of lime at 10s., £175. The first two of these items were given to me as facts, the third is an estimate—wages at 2s. 9d. per ton of coal carbonized, £1217. 5s. 9d. That is not a low estimate at all; I did not take any means of ascertaining whether it was a true estimate. The next item is wear and tear of retorts, machinery, and tools, at 1s. per ton of coals carbonized, £442. 13s. Wear and tear of mains, 31½ miles, at £2 per mile per annum, £63. This is an estimate made jointly by me and Mr. Stevenson, and not upon any information received.

Mr. Pickering: May I ask when you first went over to the other side?

Witness: I was called upon by the solicitor to the company, the day after the bill passed the standing orders of the House of Commons, and retained by him. The clerk of the commissioners called a few days afterwards, and wished to retain me, but I told him I was already retained by the company.

Mr. Pickering: Did you, before you accepted a retainer on the other side, make any communication with your old employers?

Witness: I did not, but I refused to give any information to the company as to what passed between me and the commissioners. Nor did I, in my examination in chief in the House of Commons, give any information upon the subject; it was only on cross-examination by the counsel for the commissioners that the facts transpired.

Cross-examination continued: The next item is for wear and tear of service-pipes £50. I proceeded on my own judgment, and did not refer to the books of the company for that. It is very probable that, if I had looked at the books, I should have found a much smaller sum put down under this head. The salaries were—manager, £180; bookkeeper, £80; collector £80; inspectors, £200; total, £540. These are not ascertained facts, but estimates. I do not believe we asked for information respecting them. I believe you have it in evidence from Mr. Unwin that the amounts actually expended are less than these. The next item is, discounts to consumers. We asked the company for the amount of discount allowed to large consumers; they gave us £348. 18s. 6d. Bad debts and allowances, £149. 3s. 3d., was also given to us. Rates and taxes on £2000 at 4s. 2d., £416. 13s. 8d.; that is an estimate. I knew, at the time, they were only assessed upon an amount of £800, and I considerd they ought to be assessed on a much higher sum. The income-tax paid by the company is not included in this item; I do not put it in, because I do not consider it a legitimate deduction. The ground-rents is an actual figure, £243. 6s. 8d. I ascertained the tenures upon which the different pieces of land that the works are built upon were held, and found that £31 was necessary to be put aside yearly as a fund for fines on renewals. I formed my own judgment as to the floating capital required to carry on these works, £3500; and I put 5 per cent. upon that, bringing out £175. At that time, I was not aware that the company collected their rental half-yearly; I thought they collected it every three months. I never knew an instance—it is perfectly unique—where a company collect their rental every six months. If they collected their rental quarterly, the sum I have put down here for capital necessary to carry on the undertaking would be sufficient; but, as they collect it half-yearly only, I should add £3000 more to it. For insurance, I have estimated the value of such portions of the buildings as are liable to destruction by fire—viz., £8500 at 7s. 6d. per cent., making £31. 17s. 6d. as the deduction for insurance. For renewal and reproduction, I take 1½ per cent. on £45,649; the value, when new, of the works and mains, £608. 13s. These were estimates jointly made by Mr. Stevenson and myself. Of course, the different parts of the works would require renewal at different periods; the average would be about forty years. The total expenditure charged to revenue was, therefore, £8077. 14s. 10d., leaving a net profit of £5381. 15s. 7d. I did not then test the illuminating power of the gas; I could estimate it from knowing the proportion of cannel used. It was about 15 candles—that is, what the proportion of cannel to coal would give, and it would be delivered to the consumers, with very little reduction in power except in cold weather. If the gas were tested at a considerable distance from the works, in mid-winter, there would be a diminution of illuminating power; but, at 1000 yards distance, there ought not to be any very material difference. Having arrived at the income in the way I have described, I have taken that at 16¾ years purchase, which is capitalizing it at 6 per cent. That brings out £89,696. 6s. 2d. In forming these calculations, I took local prices. I reside in London, but I have the honour to be a Yorkshireman. The works of this company are much larger than are necessary for the present supply of the town, and, therefore, I have added for parts of new works not yet brought into beneficial occupation, £7455. I took the present value of the meters let out on hire, at £2563. 16s.—making the total value £99,715. 2s. 2d., subject to the following deductions:—I deducted £4699 for depreciation in the present works and mains from their value when new. We were also of opinion that, in some points, the system of mains required to be enlarged, and we deducted £3500 for enlargement and revision of mains. We considered that a governor was necessary at the works, and we deducted £250 for that; we also deducted £2000 for parliamentary expenses, making a total deduction of £10,449, and leaving the net value of the undertaking to purchase, £89,266.

Mr. Pickering: This valuation was on the assumption that the price of gas was 4s.; but is not the price now reduced?

Witness: The price is now 3s. 6d.; but then, instead of there being 82,660,000 cubic feet made, the consumption has increased to 100 million, and, I believe, the per centage of leakage is something less than it was.

Lord Falmouth: Do you mean to say that, in two years, the consumption has increased 25 per cent.?

Witness: Very nearly that, my lord.

Mr. Burke objected to the line of cross-examination. He said the object of it was evidently to depreciate the value of the works. It was the old story of the commissioners wanting to purchase.

The Chairman (to Mr. Pickering): I hardly see how you have a *locus standi* at all; as commissioners, you have nothing at all to do with it. I do not mean to dispute your *locus standi*, because we have allowed you to cross-examine the witness; but I do not see what object you can have in this, except that of trying to keep down the capital.

Mr. Pickering: We represent the whole body of ratepayers of the town.

The Chairman: Your petition does not state that, but that you have the management of the roads.

Mr. PICKERING: In addition to that, it shows the powers we have under our Act of Parliament. We are here, too, in consequence of a resolution.

The CHAIRMAN: As individuals, you may be ratepayers. But, however, as we have allowed you to go on, there is no necessity to go into this.

Mr. BURKE: I cannot see what they have to do with it.

Mr. PICKERING: We are interested in the question of the amount upon which the company are to have 10 per cent.

The CHAIRMAN: If you came here to show that 4s. was too high a maximum, that would be another thing.

Mr. PICKERING: The company are interested in keeping up their maximum, so as to pay a per centage upon a larger sum of money than we say ought to be their capital. We should not mind a 4s. maximum if the capital were less. They may keep up their maximum until they get 10 per cent. upon a very large capital.

Cross-examination continued: The reduction in the price of gas from 4s. to 3s. 6d., might make a difference of £300 a year in the profits, if it was not compensated for by the increase of consumption. I valued the retort-house on the new side of the works at £1860; the coal store, £1984; purifying-house, £761; the exhauster-house, £75; the foundations for retort-house extension, £90; tar-wells, £135; and the chimney, at £300. I know nothing of the actual cost of these things.

Re-examined by Mr. BURKE: There is a slight error in my structural valuation of 1859 in respect of one of the gasholders, which amounts to £2033. It is adverse to the company, and reduces my valuation to that extent. On the other hand, there are some omissions. I am prepared to corroborate the general accuracy of my estimate upon the data of 1859. I am cognizant of the cost of erecting gas-works in every part of England. Mr. Stevenson, the borough engineer of Halifax, agreed with me in all these details, and also in the data upon which we formed the estimate. We never formally reported to the commissioners what our valuation was. They said we had better not make a formal report, but write a letter, and advise them to accept the offer which the company had made. We were told that there were one or two items which, if we had investigated the books, we should have found were over-estimated in our expenditure. I am quite satisfied that their own profit and loss account would show a larger profit than we made out. We did not deduct the income-tax, because it is not a charge upon the works, but upon the individual shareholders. At the time we made this valuation, we did not know what their capital or dividend was, nor at what price the shares were selling in the market. The 2s. 1d. per 1000 cubic feet, which the price for the public lamps works out, is just the cost of the gas without any profit to the company. Where a gas company have no parliamentary powers, they are entirely at the mercy of the local authorities, who can stop the operations of the company at any moment, and it is on this account that the public lamps are often supplied without a 6d. profit. The price of coke, which I have taken at 6s. 8d. per ton is a low price compared with London, but it was the actual price they were selling coke at. The wages and wear and tear we estimated; they are high estimates, and I do not believe the cost to the company is so much by 15 per cent.; I believe Mr. Stevenson thought they were too high. The salaries we estimated, assuming a given amount of capital. We ascertained what the number of persons were upon the staff of the company, and exercised our own judgment as to their salaries. We did not inquire whether the directors were charging anything for management. I assigned £3500 for floating capital on the supposition that the company collected their rents quarterly. Since 1859, there have been £1200 expended in new retorts, £4172 in mains, and £976 in meters. As to the illuminating power of the gas, if the minimum is fixed at 14 candles, they must make it at least equal to 15, and to supply 14-candle gas, they must use 25 per cent. of cannel coal. They mix the coke from the cannel with that from other coal, and sell it at the same price.

The CHAIRMAN: If gas were made entirely from cannel coal, what would be the illuminating power?

Witness: That depends entirely upon the quality of the cannel. Some, such as the Scotch Boghead, and Lesmahago, will make 35-candle gas, but it is very costly. The Boghead cannel is worth 45s. a ton at the shipping port, and the supply is very uncertain.

The CHAIRMAN: Does the illuminating power depend upon the pressure at all?

Witness: It does not.

Mr. PICKERING handed up the Huddersfield Improvement Act for the purpose of showing what were the powers of the commissioners.

The CHAIRMAN said, in their petition the commissioners merely stated that they had the management of the roads and streets.

Mr. LOCH said, it was well that the committee should understand that the powers of the commissioners only extended within the narrow limits marked upon the plan.

Mr. PICKERING said his learned friend was quite right, and the parties who appeared in the Commons upon the clauses were not within their limits, and had not the same interest as those whom he now represented.

Thomas Hawksley, Esq., examined by Mr. LOCH.

I have been thirty years in practice as a civil engineer, and have been extensively engaged in gas-works in this and foreign countries. I have been requested to look at the Huddersfield Gas-Works, which I have done; I consider that they are very good works; good for present purposes, and also for large extensions. They are well placed in reference to the level, and also, being upon the banks of the canal, for the reception of coal and the disposal of coke and refuse, a circumstance which very much tends to cheapen their operations. They are in good working condition. The present consumption is between 600,000 and 700,000 feet per diem; but the capability of the works is that of 1 million feet per diem. I have made an estimate of their commercial value; it is fully £90,000. The structural value is a thing necessary to determine, in order to ascertain the amount of capital; the commercial value has nothing to do with capital. Structural value is that amount which a company, established for that time, would have to expend out of share capital to bring the works into their present position, and maintain them so, that is to say, after deducting everything that has gone out of existence, and looking at the works remaining. My estimate of the structural value is £58,000, without adding anything for the value of the canal which, to a gas company, is a very important consideration. The works are so exceedingly well situated, with respect to the canal, that the company may be said to gain 6d. per ton more than an ordinary company, as profit upon everything they bring in or send out; but, without taking that into account, the structural value is, undoubtedly, £58,000. That amount does not include the floating capital required. In addition to the value of the structure, the company would have to raise from share capital about £7000 or £8000 to enable them to carry on their undertaking; I believe this company has actually more floating capital than that. They require more capital than most companies because of collecting their accounts half-yearly. I have taken the case of a company collecting quarterly. My total estimate, including the necessary floating capital, is 65,000; and, taking the works in their present position, I think they represent that value. Huddersfield is rapidly increasing, and is situated in one of the most flourishing parts of the country. The increase in the consumption of gas has been very great; and that the efforts of the company to meet that increase have been judicious, is shown by the result. Ordinarily, gas companies double their income once in fourteen years, and require capital in the same proportion. In this case, I think the increase has been nearly three-fold in that period. I am aware that, at the present moment, they are endeavouring to obtain an additional site for the purpose of extending their works. The nominal price of gas at Huddersfield is 3s. 6d.; the actual price is less. The company have to send out a considerably larger quantity of gas than they get a return for; so that the price, as measured at the station-meter, is very much less than 3s. 6d. This is inevitable in all gas undertakings. The illuminating power of the gas, from coals available in that district, is very good, and the price is moderate in reference to the illuminating power. The best cannel coal is not obtainable in that district. The price of gas is lower than is usual in manufacturing towns. The maximum provided in this bill is very low; a difference of 6d., in my opinion, is inadequate to provide for those contingencies to which a company is liable, from increase in all the articles of consumption. With regard to coal, the price is gradually going up, and I do not think it is very likely that it will ever be reduced to what it was formerly. There is an immense consumption at the present time. As much as 75 million tons were raised and destroyed last year, and the consequence is, that the price of coal is gradually and steadily increasing. I should no think that a maximum of 4s. 6d. in this bill would be unreasonable, inasmuch as any addition to the cost of the articles employed by the company comes out of their profits.

Mr. PICKERING: We are not here to raise any question about the price; it is the amount of capital, and the rate of dividend to be paid upon it. You may take it from me that I do not intend to question the maximum.

Mr. LOCH: But something is said in the petition about the illuminating power. (To witness.) That has something to do with price, has it not?

Witness: Yes, undoubtedly; because you are charging the same price for a better article, and one more costly to manufacture. I think the illuminating power in the bill is high enough; for a company not to fall below it, they must send the gas out from their works at 16 or 17 candles, as there is some deterioration in the gas as it travels to a distance. I consider these works are very liberally conducted now, though formerly they were too economical; but, that was in favour of the public. In nearly all cases, the company furnish the consumers with meters, charging a rent for them. I think less than 70 or 80 consumers supply themselves with meters. The company also supply a portion of the service-pipe; the consequence is, that a considerable number of small consumers are supplied, who would be entirely shut out if they had to go to the expense of these things. The district proposed by the company to be supplied from their works is favourable for the purpose. There is an enormous population located in that district, which is rapidly increasing. I believe now, the population amounts to 70,000 or 80,000, of which one-half is in Huddersfield proper. I have no doubt that the company will have to double their works within a few years. The capital fixed by this bill will be exhausted in about ten years, and I do not think the company should be required to come too often to Parliament for an increase. At Nottingham, Parliament gave the company a capital of £400,000 when they had not invested more than £150,000; at Bolton, Parliament gave £184,000, when the company had only expended about £60,000; and so in a great many cases. In towns where there is a great deal of manufacturing enterprise, it is necessary that this should be so, for the capital soon becomes exhausted. It is decidedly to the interest of a gas company not to call up more capital than they have use for. I have never known a single instance in which a gas company have laid out more money than was necessary. With reference to the supply of gas being in the hands of a corporation instead of a company, I may state that I think there is always better and more consistent management when they are in the hands of a company, that the public are always better served, and there are no conflicts as between the one portion of the population and another. Where the works are in the hands of a corporation, if it is a manufacturing place, there are invariably conflicts arising; the millowners wish to get the price of gas reduced to the minimum, and, on the other hand, the ratepayers desire to keep up the price in order to relieve themselves. There are always violent conflicts between consumers and non-consumers, and between large and small consumers.

Mr. LOCH: Would not that tendency to conflict be aggravated if the area in which the commissioners have power is not coextensive with the area in which the gas is supplied?

Witness: Yes, that is the case at Manchester, where the annual municipal elections turn upon what is called the gas question.

Mr. LOCH: That is to say, the persons who consume gas have been victims for the sake of the ratepayers?

Witness: Yes.

Examination continued: The same thing would arise in Huddersfield with the persons in the smaller area, who would have conflicting interests to the persons beyond. I should like to purchase the works at £65,000, which I have taken as the structural value; but there has never been an instance in which works were sold except at their commercial value. There have been some amalgamations between companies, in which the structural value has been the basis; but there has never been a sale, that I am aware of, except upon commercial value. In estimating commercial value, I should not think it necessary to look into the company's books, to see the profit and loss. That depends upon management, but an intending purchaser looks at the state of the undertaking, and estimates what he can make of it; or, if sold by arbitration, the arbitrator would do the same thing. He would like to see whether any parts of the works are undeveloped—that is, whether the works are larger than is needed for the present supply, and, if so, he adds something for the enlarged portion; if, on the other hand, the works are defective in any particular, he makes corresponding deductions, so that the incoming tenant may enter at a rate which represents an immediate interest to himself of 6 per cent.

Mr. LOCH: Therefore, in making an estimate of the commercial value of the undertaking, you would set aside the consideration of profits made at any period, and look at the capabilities of the concern?

Witness: Certainly; and also the defects.

Mr. LOCH: There are certain known data, upon which you can make a calculation of that description?

Witness: Yes; a well-constructed gas-work ordinarily costs between £600 and £700—or, at least, has cost, taking the last twenty years as a guide—in respect to every million feet of gas it is capable of sending out in twelve months. That you may take as a very good guide to the value of any well-constructed gas-work, that has been constructed for twenty or

twenty-five years. Of course, if you start it *de novo* at the existing low prices of materials, you might build the works for something less; but, looking at the run of prices over the whole period, and the gradual increase of share capital, you will find in general it comes to between £600 and £700 in respect to every million feet of gas which the works will send out. Applying that formula to these works, it obviously comes out between £60,000 and £70,000, and that corresponds very nearly with the ascertained actual expenditure of the company.

Mr. LOCH: As to capitalized profits, do you see any difference between profits not divided, but capitalized, and shares created with the actual payment of calls upon them?

Witness: There is no difference. I may put the question of commercial value in a very short form. If I could get from the spout of a pump £5000 a year, that pump would be worth £100,000 to me, and it would be perfectly immaterial what the cost of the pump was—that is, so far as respects commercial value. Then, again, as to structural value, so far as the company are concerned, if any portion of the works upon which money had been expended, went out of existence, that, of course, must be written off from the capital; and, if there was any want of repair, any dilapidation, that, of course, must also be written off from the capital; but, if the work is in a good going condition, and is in fair order, capable of doing the business it is called upon to do, then the structural value of the works, so far as regards the share capital of the company, is exactly that which has been laid out upon its construction, though that construction may have commenced twenty or thirty years ago.

Mr. LOCH: With reference to the principle I called your attention to do you see any distinction between the payment of calls upon the shareholders by a cheque on their bankers, or by foregoing profits which they might have divided?

Witness: There is no difference for the reason I have given; it makes no difference whether it comes out of one pocket or another. Within my own knowledge this state of things has happened, that a company for many years have paid no dividend, and yet, as at Swansea, the works have increased so much in size that the structural value is very largely in excess of the original capital. In the case of Swansea, Parliament has this session given them three times their original share capital as the value of their works, upon which there has been a large expenditure out of profits: indeed, I think they have given them £24,000, the original share capital being only £6000. In Dover, something of the same kind was done, but I do not know to what extent. The public are the benefited party in these cases, because on the invested profits no dividends have been paid, which would have been the case had the capital required for extensions been raised by actual contributions from the shareholders.

Cross-examined by Mr. PICKERING: I first went down to examine thes works in November last. The limits within which the company are to supply gas, are prescribed in the 5th clause of the bill. I think the farthest place is three miles from the Market Cross. It was originally defined by the names of the townships; but it is now defined by a radius of three miles. There is a tongue of land within one of the townships, which is obviously a little further; but, generally speaking, it is about three miles.

Mr. PICKERING: When you put, as a general proposition, that the value of works is £600 or £700 for every million feet of gas supplied per annum, does that vary according to the district to be supplied?

Witness: There may be an exception, but it is very small.

Mr. PICKERING: Is it only about one-half of that, sometimes?

Witness: No; never in a well constructed gas-work.

The CHAIRMAN: Does that include all the mains?

Witness: It includes the mains, meters, and all the plant and apparatus of gas-works. It applies to a work, the supply from which extends to a distance of two or three miles.

Cross-examination continued. The illuminating power of the gas to be supplied is 14 candles. It depends upon the place where the gas is tested whether it is the same as when it leaves the works; and the company must make their gas of a higher power in order to prevent their coming within the meshes of the law. The main difference in the illuminating power is caused by the gas standing in the gasholders upon the company's premises. I mean to say that the gas must enter the gasholder at least one-fifth higher in quality than the limit placed in this bill; for, by standing in the gasholder, its illuminating power is diminished, and in travelling through the pipes, it diminishes somewhat more. When the weather is cold, some of the illuminating vapours become condensed, and a further diminution, both in the gasholder and in the pipes, will take place. There is no specification in the bill as to what shall be the illuminating power of the gas at the consumers premises. The gas is to be tested as here expressed (in some convenient part of their works); and, of course, both the consumer and the public will take their chance after the gas leaves that point.

Mr. PICKERING: But I want you to explain this. If you put the test at the works, and the gas is only equal to 14 candles, then will it not be somewhat less when delivered to the consumer?

Witness: It will, in certain states of the weather; in the summer, it will not; in the winter, it will.

Mr. PICKERING: Then what is it that you propose? To supply gas to the consumers equal to 14 candles?

Witness: We propose to send the gas out of the works at not less than 14 candles; but practically it will be 16 or 17. I mean to say this: the cost of the gas is incurred at the retort; the illuminating power of the gas is given at the retort and tested there, or as near as possible. If the gas is passed into the gasholder, and stands for some time exposed to the influence of the atmosphere for hours during exceedingly cold weather, some of the condensible vapours will be thrown down, and the gas will be diminished in illuminating power; and, if you test the gas as it leaves the works, you will find it lower by one or two candles than when it entered the gasholder. That is a natural fact, and the company cannot be responsible for it; they have already incurred the cost.

Mr. PICKERING: What proportion of that power do you say it would lose before it gets to the consumer?

Witness: That depends upon the weather. In the town itself, being so near the works, and so dense, there would be no appreciable difference; but, in the out-townships, there would be. My estimate of £58,000 is the value of the works as they stand, and without any regard to the money laid out upon them except for that which is now in use. If they were not in good repair, I should have deducted the amount necessary to put them in order. If I found them in good working condition, I should consider them equivalent to new, as far as regards the question of share capital. I will assume this bill to have passed, and that the company, in the course of a couple of years, has to make extensions, say of the value of £10,000, they must raise share capital to that amount. At the end of twenty years, that share capital will not be one farthing less than the £10,000, because the works are twenty years old; but they must be maintained and kept in order from time to time, so as to continue productive to the company.

Mr. PICKERING: When you speak of structural value, you include the two—share capital and the other?

Witness: Certainly; but that does not alter the amount of capital; it only varies the amount of interest to be paid upon it.

Mr. PICKERING: Can you tell me how you apportion that £58,000?

Witness (after some calculations): Buildings, new and old together, £15,318, machinery, £8946, gasholders, £8250, mains and services, £19,920, meters, £6439. I have taken the tanks with the buildings, and the retorts with the machinery. The amount included in the first item for new buildings, is £9548.

Re-examined by Mr. LOCH: These are the figures upon which I and Mr. Barlow, after some consideration, substantially agreed. The additional charge for gas to the outlying district depends not upon the illuminating power, but upon the extra charge for collection, and the larger outlay necessary on a small consumption, also, the additional amount of leakage. The question of illuminating power has nothing to do with the question of price, as between one district and another. The Huddersfield Company are supplying a population, at present, of about 80,000. In a manufacturing district, a company is considered to supply 12 cubic feet a head in a winter night; or, in a population like Swansea, about 8 cubic feet. The districts proposed in this bill to be supplied are in many parts densely populated. I believe the total population is about 70,000; in the township of Huddersfield, about one-half of that number; and, under the jurisdiction of the commissioners, one-third.

Mr. *George Emmott*, examined by Mr. LOCH.

I live near Rochdale, and am engaged in the construction of gas-works. I have been consulting engineer to the Huddersfield Gas Company for some years. I was called upon to estimate the structural value of their works, which I believe to be £58,178, to which is to be added £10,000 for working capital. My estimate is based upon experience of gas-works in that part of the country. We have found, during the last four or five years, that it has been necessary to have a large stock of coals on hand, especially during the winter. I agree with the witnesses, that the gas supplied by the company is of good quality, and that the price is very low.

Cross-examined by Mr. PICKERING: I could tell the actual cost of some of these works. There is a retort-house among them which was built under my superintendence, but I do not know the exact cost of it. Abraham Graham was the contractor, but I do not know the amount of his contract. I have taken out the cost of the entire new works, and it amounts to £17,890. I do not know the cost of the retort-house separately. I was consulted before the contract was entered into with Graham, and made the plans for it. I should think it would cost more than £1100, nearer £2000. I do not know whether Graham's contract was for the retort-house, coal-store, purifying-house, meter-house, and exhauster-house. I did not go into the minutiæ of the contract, nor was I present when the work was let, so that I cannot give you an opinion of the actual cost of each. The entire cost of the whole of the new works on that side of the canal was what I have said; that sum includes the cost of the foundations for the extension of the retort-house, and tar-wells; it includes also chimney, No. 4 gasholder, and tank, and everything done upon the works since 1859. The new gasholder was upwards of £4000; the tank was let among the other things. The pumping would be about £200. The value of the old works was £10,092; mains and services together, £18,527; meters, £6308; and 10 per cent. for contingencies, £5288. There are 4297 meters.

Re-examined by Mr. LOCH: I include the new ovens in the new works. There have been twelve new ovens erected at a cost of about £100 each.

Mr. *C. Copeland*, examined by Mr. LOCH.

I live at Hull, and am resident engineer of the British Gas Light Company of London, who have constructed works at Hull. Previous to that, I was secretary and engineer to the company in London. I have lived in Hull nearly seven years. The annual produce of the gas-works there is a little short of 100 million cubic feet, which is very similar to the produce at Huddersfield. Our company was formed in London when gas-works were in their infancy. The Act of Parliament for the works at Hull was obtained in 1858. The capital then expended was £71,000. I do not know how much of that was invested profits.

Mr. MEREWETHER objected that this was not evidence.

The CHAIRMAN: I suppose he wants to prove that a gas company of similar size has cost so much money.

Mr. MEREWETHER: But your lordships must see that, if we are to go into this, we must ascertain how far the two cases are parallel.

Examination continued: We were allowed to capitalize £57,000, and to raise £43,000 additional, upon which we were allowed 5½ per cent. I have inspected the works at Huddersfield. They are very well constructed, and in capital order; I have seldom seen works in better condition. The original construction was good, and they have been kept in efficient repair. They are built with the stone of the locality, upon which the weather has very little effect. Had the walls been brick, they would not have stood as those have done. There is a great deal of smoke upon them, but no symptom of decay.

The CHAIRMAN: We want some of that stone here. (A laugh.)

Witness: The works are of greater capacity than is required for the present consumption; and, with a slight increase of gasholder-room, they could supply 150 million cubic feet annually with little outlay of capital. I have not gone into the details of structural value. At the time of my visit, I inquired whether a valuation had been made? I was told that Mr. Barlow had made one, and I took his estimate and went over every part of the buildings. I found generally that the figures were understated, and several items entirely omitted—that is to say, matters included since. I think his valuation is a most fair one. I was requested to look at No. 4 tank, which, upon a rough estimate, I should think would not cost less than £2300. There might have been circumstances to make it cost considerably more. I was informed about the weight of the gasholder, which struck me as being more than I should put into it; but, taking that quantity, the price put upon it by Mr. Barlow, £4835, is certainly a fair one. The items omitted in Mr. Barlow's valuation were a water-tank over the exhauster-house in the new works, £50; a four-horse power engine, £60; shaft to drive water-pump, £40; water-pump and gear, £20; exhausting apparatus for new station, £120; boiler and fittings, £50; valves on the works, £225; and difference in No. 4 gasholder tank, £193; making a total of £758. Some of these have been added since Mr. Barlow's valuation was made. The price of gas at Huddersfield is exceedingly low, considering the illuminating power. I tested the gas at the time of my visit, and it was 16·32, candles, which was the result of a series of upwards of thirty observations, made in the course of the day. I think the illuminating power approaches the full capacity of the coal. I have used a similar kind of coal at Hull, and could never get more than 17 candles; and, in general I should say it would not

produce that. I think it would be fair in this bill to fix the minimum illuminating power at 14 candles, which is high compared with the country generally.

Cross-examined by Mr. MEREWETHER: I attended at the works by appointment. The population of Hull was a little under 98,000 at the last census. There are three gas companies in that town.

Re-examined by Mr. LOCH: I do not know what the united capitals of the three companies are.

Mr. *John Aird*, examined by Mr. LOCH.

I am a contractor for public works, and have executed them in various parts of the kingdom. I have built gas-works both in town and country. I was manager of the Phœnix Gas-Works, at Greenwich, at one time. I should say the works at Huddersfield are very good works; they are very substantial and in excellent order I have made a very careful calculation of the outlay necessary to erect and complete such works. I consider the value of them altogether about £61,000; they must have cost that money, certainly. I therefore agree with the previous witnesses as to their structural value.

This was the case for the promoters.

Mr. MEREWETHER said he wished, for the sake of their lordships patience, if for no other reason, that this was the end of the case. He would say, in the first place, that he thought his learned friend, Mr. Burke, very much overlaid this bill, and that he introduced a great deal to the notice of the committee which he might fairly have spared. It so happened, that Mr. Burke was chairman of the Imperial Gas Company, to which reference had more than once been made; and to that fact must be attributed the knowledge and vehemence which he always displayed in reference to gas matters. Certainly, in the present case, he had been led to state many things which were not quite consistent with the facts as they existed, while he had distorted many others, so as to present them in a form which they ought not to assume. He (Mr. Merewether) would dismiss these matters as soon as possible from his consideration, and would not, had he not felt bound to do so, have noticed them at all. In the onset, he was desirous of explaining the position of those whom he represented. The committee had heard, over and over again, by Mr. Burke, that the commissioners of Huddersfield complained of certain things being done in the House of Commons in their absence; and it had been repeated, *ad nauseam*, that they did not, as they ought to have done, continue their attendance. But, their lordships did not need reminding that, according to the practice of the House of Lords, parties who opposed a bill on clauses in the Commons, appeared before a committee of this House under manifest disadvantages; and, in fact, that their mouths were closed on the subject. And, no one knew better than his learned friend, that when parties desired to carry their opposition to their lordships House, they invariably made their bow to the other tribunal, and reserved their case until they came here. But, said Mr. Burke—praying in aid every small argument possible—the commissioners were present, notwithstanding; and he endeavoured to support that statement, by pointing to the fact, that Mr. Sudlow, who was the parliamentary agent for both parties, continued in attendance to the end of the inquiry. But, Mr. Burke knew as well as he did, that nothing was more common than for one agent to appear for all the petitioners, and to continue his opposition on behalf of some when the others had retired; and, therefore, it was not fair to adduce that as a proof. But, then, Mr. Burke went further, and said the bill was satisfactory to the consumers of Huddersfield, which was not the fact; and it was for him (Mr. Merewether) to show, why, such being the case, those consumers were not present now. They did not appear by counsel in the House of Commons, but they did their best to enforce their views; and, finding that the commissioners intended to appear here, and renew their opposition, they came to a resolution, which he would read to the committee, to leave their case in the hands of the commissioners, who, in fact, represented the town of Huddersfield. At a meeting of the committee of the gas consumers, it was resolved—"That the thanks of the gas consumers, and other inhabitants of the district, are due to the Huddersfield improvement commissioners, for the strenuous opposition which they offered to the bill of the company in the House of Commons, and for the important benefits derived therefrom, and recommending that that opposition be continued in the House of Lords." In fact, the resolution showed, first, why the consumers were not here; next, that the commissioners represented them; and, third, that they were entirely dissatisfied with the result of the inquiry. Those who instructed his learned friend must have known that that resolution had been passed.

Mr. LOCH said there was one rule applicable to proceedings in Parliament which his learned friend appeared to have overlooked—viz., that no petitioner could travel beyond the four corners of his petition. Now, the petition before their lordships said nothing of any resolution or memorial of the consumers. The commissioners might, to a certain extent, represent certain public interests, but they could not represent the consumers of Huddersfield. There was no such thing as vicarious opposition in Parliament, and even if there were, the commissioners had no *locus standi* on that ground, for it was not in any way alluded to in their petition.

Mr. MEREWETHER said he was not appearing for the gas consumers, but referring to their resolution in order to answer Mr. Burke's statement that they were satisfied. He referred to the memorial to show that they were dissatisfied; but, apart from the technical objection of his learned friend, he would state that the commissioners were the representatives of the people of Huddersfield.

Mr. LOCH said he should venture to press his objection to the production of that paper in the shape in which his friend presented it, as it was clearly intended to be put forward as the ground of his learned friend appearing in the capacity he did for the inhabitants of Huddersfield. He submitted that it was not competent for him to do so; and even if it were, it was not in his petition. So far as the limits of the commissioners jurisdiction extended, it might be true that they represented the inhabitants; but this was a resolution purporting to come from the whole body of consumers. His learned friend, if he did anything, must be content to bring before the committee the instances of individual consumers who were dissatisfied.

The CHAIRMAN (to Mr. Merewether): We admit that you are at liberty to mention the fact; but, if your remarks are of any value, you must bring witnesses to back them up. We do not admit that you are here as the representative of the consumers in any proper sense. From what Mr. Burke says, there are no consumers who appear here by petition; and you, as appearing for the commissioners, cannot represent them.

Mr. MEREWETHER: I am dealing with my friend's statement that the gas consumers were satisfied with the bill as it came from the House of Commons, and that that is the reason they do not appear here.

The CHAIRMAN: It is the natural inference. They did appear then; they do not now.

Mr. MEREWETHER said he thought it was within his province to show why they did not appear. His learned friends had drawn the wrong inference, and he was desirous of showing what the feeling in Huddersfield was. The next thing which had been asserted was, that the commissioners were here with a sort of fishing case; that they did not know what it was they should be in a position to prove, and that it was their own fault they did not, as they had had full access to the company's books. Now, it was shown in the House of Commons that, when the parties were in negotiation, certain gentlemen were allowed to inspect those books, but that, when the commissioners wanted to get information for the purpose of this inquiry, the company stated that, under the advice of Mr. Burke, they should decline to give it. His learned friends on the other side were at liberty to say that that was a prudent course, but they ought not to say that the opportunity had been afforded. All he could say was, that when his learned friend asserted, at an earlier stage of these proceedings, that the commissioners had no right to inspect the books before the court, he was attempting to mislead the committee upon a point respecting which no man in Westminster Hall would differ with the view which he (Mr. Merewether) had taken. The books were on the table, and he would state to his face, if Mr. Burke was now present, that he was misleading the tribunal before which he appeared, on a matter of clear and intelligible law. From all this, their lordships would see what kind of inspection the commissioners had been allowed. There was no question that, at one time, the commissioners were willing to buy, and the company as willing to sell these works. The commissioners sent two gentlemen to make a valuation on their behalf, and there was a conditional—not an absolute—agreement entered into between the parties. Mr. Burke went further than he should have done, when he stated that the commissioners broke the agreement, because, upon further information, they found that the sum they had offered, and which the company had accepted, was found to be too much. The company subsequently brought in their bill, and the commissioners opposed it, because they felt that the amount of capital was unduly extended. That matter had been partially altered in the Commons, but they felt it was still too large. He did not intend to recriminate, nor to pay much regard to the statement made on the other side, that the commissioners wanted to buy the property of the company "cheap." They did wish to buy it; they were willing to give a moderate price, but the company asked too much; and that was the long and short of the story. They intended to ask their lordhips to replace in the bill the clauses which were expunged in the House of Commons. Those clauses were mutual clauses for buying and selling; and he ventured to submit that, seeing those clauses were in the bill, with the consent of both parties, when the bill was introduced into Parliament, they were usefully there, and ought not to have been removed in the absence of the commissioners. It was not because the company achieved a temporary success in the other House, with respect to their capital, that they were then to turn round and say, "This is so good a thing for us that we will expunge the clauses which will render it possible for us to sell our undertaking to some one else." He thought there could not be a more certain proof of what they thought they had done in misleading that branch of the Legislature, than the course which the company adopted. They were willing to sell before they went into the House of Commons, but the moment they got their capital fixed at a large amount, and the commissioners had retired, they struck out the powers of transfer, and determined to keep the thing in their own hands. His learned friend, in opening his case, spoke of the limited powers of the commissioners. He would show that their power extended to the police, paving, lighting, &c., of the town. In the exercise of that power, and appearing before the committee, they came as a public body. He (Mr. Merewether) was not there as counsel for one gas company against another; he did not, therefore, represent those who had a pecuniary stake in the matter, but those who were desirous of protecting the public interests alone. And he would ask, after referring to the early history of this company, the mode in which they had created and dealt with their shares, the returning of £2000 of capital to the shareholders, and immediately afterwards doubling the full amount of their shares without the payment of a sixpence—whether, as a public body, the commissioners would have done right to sit down and allow these undenied and undeniable facts to be lost sight of when the company came forward and asked Parliament to sanction their proceedings, and to fix their capital at the large sum stated in this bill. The company's own auditors had declared their inability to distinguish between their capital and revenue expenditure, and yet the company asked the committee to declare that they had expended an enormous sum out of the profits of the undertaking, and authorize them to treat that expenditure for the future as capital. It would appear that the company themselves knew that they could not support the statement of their expenditure by their books, and therefore they put forward Mr. Barlow and other engineers to show that the works must have cost that money. But what necessity would there have been for doing that, if their books had been properly kept? The promoters, instead of producing vouchers for their expenditure, had brought forward an entirely speculative estimate; and he should be prepared to show, by witnesses, that Mr. Barlow's calculations were entirely erroneous. He was in a condition to prove that, where Mr. Barlow had estimated a thing at £4985, it actually cost only £2395; that that which he had put down at £300, cost only £215; and that that which he had calculated at £8975, only cost £6096; so that, with reference to these items alone, which he had put down at £14,260, they really were purchased for £8706, showing a difference between speculation and fact of £5553. He did not intend to present this as the sum total of the difference between the parties on the subject of capital expenditure, because the commissioners, not having had access to the company's books, were not in a position to verify every charge; but he thought he had a fair right to ask the committee to criticise very narrowly the whole of the estimates of the promoters, seeing that, in three items alone, there was this great discrepancy. Without going through the figures at greater length, he would state generally that it was his intention to attack Mr. Barlow's estimates. It might be urged, on the other side, that it was not competent to him to do so, seeing that gentleman made those estimates at the instance of the commissioners. In reply, he would say, it was obvious that no great reliance was placed by the company upon Mr. Barlow's calculations, seeing that they were willing to take a very much less sum than what he valued the works at. He believed he should be able to show that, at the outside, the structural value of these works was £45,000. The committee would observe how rapidly the capital of the company had increased lately. Even up to the very threshold of this inquiry, and while their bill was in Parliament, they had increased their capital, which was so much inflated in 1843, to a still greater extent. Supposing he was fortunate, as he thought he should be, in showing that Mr. Barlow's calculation was altogether overrated, then the whole of the company's speculative estimate fell to the ground. If the committee were not satisfied, as he thought they could not be with the statement of invested profits, then that part of the case would share the same fate, and if in addition he should prove, as he hoped to do, that there had not been a sufficient allowance for wear and

tear, the capital must be decreased on that head. If, upon any, or all of these heads their lordships should decide that the capital in the bill was not a fitting one, then those whom he represented, would have fulfilled their destiny in opposing the measure. Assuming, however, that their lordships were satisfied as to the amount of capital, then he would respectfully venture to point out how very undesirable it was in the public interest, which he believed they would regard as of more importance than the views of the commissioners or of the company, that the clauses which existed in the bill when it came before the House of Commons should be non-existent in the Act when passed. The commissioners were the public authorities in Huddersfield; and, if those clauses were omitted, they would be prohibited from ever becoming the purchasers of these works. He thought it was needless here to enlarge upon the desirableness of the local authorities having the control of the lighting of the district. It was evident the company felt that there ought to be the power of transferring their works to the commissioners, when they brought in their bill, and it was only when in the House of Commons they got their capital fixed at a sum far beyond their expectations, that they struck out those clauses, and determined to retain so good a thing in their own hands. He quite admitted that the question of capital must always be a matter of opinion, where things were kept so dark as in this case (though he hoped to throw a little light upon it before his case was closed), but whether that were a matter of opinion or not, there could be no question that on public grounds the expunged clauses should be restored. Whatever might otherwise be the result of this inquiry, he was convinced he should be able to show that the capital of the company should be reduced by at least £10,000, and that the purchasing clauses struck out in the House of Commons should be reinserted.

WEDNESDAY, MAY 15.

Mr. *David Chadwick*, examined by Mr. PICKERING.

I am a consulting accountant at Manchester, a Fellow of the Statistical Society in London, and an Associate of the Institution of Civil Engineers. I am the auditor of the Manchester Gas-Works, and was for many years treasurer of the corporation of Salford Gas-Works. I have had a great deal of experience in the financial matters relating to gas-works generally.

Mr. PICKERING said he would now call for the company's cash-book and ledger.

Mr. HOPE SCOTT said he would take this opportunity of asking upon what point the petitioners were to be heard? Their lordships had been already informed of the nature of the struggle in the House of Commons, and that the commissioners of Huddersfield afterwards withdrew and left the matter in the hands of the consumers. He could conceive no object that the commissioners had in view in the investigation of the company's books except that of endeavouring to reduce the value of the undertaking, for the purpose of purchase. The promoters of the bill were quite in the hands of the committee; and, whatever inquiry they thought it necessary to go into, they would most willingly acquiesce in.

Mr. PICKERING said he appeared on petition, and should confine himself to the matters set forth in that petition. He appeared on behalf of a public body, who also represented a large number of consumers of gas within the ambit of their jurisdiction.

Mr. HOPE SCOTT said the gas consumers of Huddersfield were heard on clauses in the House of Commons, and were, therefore, precluded from this inquiry.

Mr. PICKERING said it was perfectly true that a portion, but only a small portion, of the consumers appeared before the committee in the other House. The town commissioners now appeared at the request and solicitation of a large body of the inhabitants, who were gas consumers, and most materially interested in this matter.

The CHAIRMAN said the committee had no evidence as to how many consumers appeared on the former inquiry. The consumers were the parties most likely to be interested in the rates at which the gas was supplied; and he took it for granted from what he had heard that they were satisfied with what was done in the House of Commons. Nothing had been said here about price, but only about capital.

Mr. PICKERING: I beg your lordship's pardon.

The CHAIRMAN: There was no cross-examination on the point.

Mr. LOCH: Your lordship will remember that I was stopped when about to examine one of our witnesses on the point of price.

Mr. PICKERING said it was not questioned for a moment that the gas consumers had an enormous interest in the question. The company were seeking to obtain a high rate of dividend upon a large amount of capital, and they had professed to give evidence as to what that capital should be. The case of the consumers was, that the capital was much in excess, and that, whatever the committee might fix the capital at, 10 per cent. was too high a rate of dividend to be allowed upon it. In reference to Mr. Hope Scott's remark, that the commissioners desired to purchase the undertaking, and were therefore seeking to reduce its value, he reminded the committee that all the purchasing clauses in the bill were struck out.

The CHAIRMAN: But Mr. Merewether dwelt largely upon the importance of restoring those clauses.

Mr. PICKERING said, even putting it in that way, if the commissioners were desirous to reduce the value of the works that they might become buyers, the company were equally interested, on the other hand, in increasing that value; and, after all, the powers which Mr. Merewether referred to were only permissive powers. This, however, was not now the point that he was upon. He was anxious to deal entirely with the share capital of the company, and the amount of interest which they should be allowed upon it; and his ground of argument was, that he represented a large portion of the inhabitants of the township, who were themselves actual gas consumers.

The CHAIRMAN said, at present the question was as to the production of the books. If there was any one point that the learned counsel desired to investigate, he might do so; but he could not be allowed to call for the books in order to make out a case against the company.

Mr. PICKERING said the company found themselves utterly unable to make out their case from their books, and, therefore, they gave evidence as to value. He meant to affirm the report of the auditors that, from the books of the company, it was impossible to come to any satisfactory conclusion as to the amount which had actually been expended upon the works.

The CHAIRMAN: Then, the books had better be put aside altogether.

Mr. PICKERING: If your grace will say so, I will confine myself entirely to the question of value, as a matter of opinion.

The CHAIRMAN: We cannot go that length.

Mr. HOPE SCOTT said his learned friend assumed that he, as representing the gas consumers or the commissioners, ought to be allowed to go into the question of the capital of the company. Could there be anything more hard upon a public company than that a body of individuals should petition the House of Commons, professing to represent the gas consumers; that they should go into clauses, and profess to be satisfied, and then, having gone down to their constituents, and boasted of what they had done, another body of consumers should come forward, and claim to be heard in this House. Surely, there was not to be a different nucleus for each opposition, and, when one portion of the consumers were satisfied, another portion were to be heard asking for something in addition. He submitted that, the consumers having been heard upon clauses in the House of Commons, they were precluded by the invariable practice of this House from reopening the inquiry. The commissioners of Huddersfield stalked out of the committee-room of the House of Commons, and left the consumers to do their work; and now they came forward, professing to represent, and desiring to fight over again, the battle of the consumers.

The CHAIRMAN: Still, we have admitted them. Your argument would have been a good argument, in the first instance, against their being heard at all; but we cannot now turn them out of the case.

Mr. HOPE SCOTT: Until we heard Mr. Merewether, we could not tell what their case would be.

The CHAIRMAN: We have to determine whether the Committee of the House of Commons were right in fixing the capital at what it is in the bill, and we have the power to say that, it shall be higher. We do not know how many signed the petition to the House of Commons, but should certainly suppose the main body did so.

Mr. PICKERING: That was not the case.

The CHAIRMAN: Let us hear what the witness has to say, and if, in any particular point, you want to investigate the books, you shall do so.

Examination continued: I was present when Mr. Unwin gave his evidence, which was partly from an examination of the books and partly from his opinion independent of the books. The other witnesses spoke, not from the books, but simply as a matter of opinion. Mr. Unwin said, "The book in my hand showed the amounts which should be charged to capital." I understood him to say, he had been able to verify from the books of the company the actual amount of capital invested in the works. I have had the opportunity of looking into the books to which Mr. Unwin appealed. He said it was with reference to the stock amount that he was able to say what ought to be put to capital, and what to revenue. On examination of these books, I find that there is a proper profit and loss account, and a proper capital or stock account. If the items were properly entered under these two heads, the expenditure might be taken for granted; but, I find that the books have been very loosely and carelessly kept, so that no person can distinguish from them whether the proper items have been posted to capital or to revenue. In proof of that, I may say that under the head of stock account, there is merely the names of the parties from whom the goods were purchased, and not the materials for which the money was expended; and that certainly many things belong to revenue which are entered to stock. I concur in the statement in the auditor's report, that they found themselves quite unable to make the distinction. I think the auditors very mildly expressed what was the fact. There is a tendency in all the books to overload the capital. In every year, wages and materials have been carried to stock account, and then at the option of some individual certain items have been taken out and carried to capital. I quite agree in the opinion of the auditors, and I say it is quite impossible for Mr. Unwin or any gas engineer or accountant to verify the question of capital account, and I also say that no experienced accountant would have ventured to give such an opinion. I have gone through these books, and find there are many items entered to capital instead of revenue. In 1824, the year after the works were established, there are entries of payments to Joseph Cliff for clay-retorts, which certainly ought to have been charged to revenue. I have endeavoured to refer to the invoices, to ascertain whether they could be properly charged to capital, but I cannot find invoices for half the entries. There are sums charged in 1822 and 1823, without any description of the articles for which they were expended. In 1825, there is a deduction made from the capital account, and a transfer to profit and loss, and several other items, the object being to put everything to capital, and then at the end of the year to make such deduction as they thought proper. I say that the books are kept on such a principle that, if it had been the intention to deceive the gas proprietors or the commissioners, those books are so kept that they would do so. In subsequent years, even petty cash items and sundries are entered to stock account, and occasionally are transferred. The difficulty is to understand why, when there was a profit and loss account in which they would be properly entered, they should have been deliberately put down in the stock account.

The CHAIRMAN: I think the argument is quite the other way. It seems to me that the directors were very particular, and would not allow the accountant to put anything to capital which ought to go to profit and loss. The accounts have been corrected by them, and items struck out as not belonging to that account.

Mr. PICKERING: I understand there is nothing struck out.

The CHAIRMAN: Oh, yes, he says there are several things struck out.

Witness: In 1825, there are various items struck out of the account to the amount of £55, and also in every subsequent year, In 1831, there are forty-seven articles debited to capital account, and a portion of thirty-six of those items have been transferred. Of course, the items struck out may or may not be correct; but no person examining the books can say whether it is or not. These books are very imperfectly kept, or the entries would show what the items are for. I am aware that the company are proposing by this bill to obtain the sanction of Parliament to a certain per centage upon £39,000, which they call share capital. I have here a statement furnished to the Huddersfield commissioners by the company, showin the amount of their dividends; and a statement prepared by me showing the dividend for each year upon the actual amount of capital expenditure in the works from 1821 to 1859. I put this in.

The CHAIRMAN: What are the grounds upon which you say their calculations are wrong?

Mr. PICKERING: A certain amount has been paid year by year as profit to the proprietors. We do not dispute that fact, but we are going to show by an accountant what that will amount to upon the capital actually paid up. Mr. Merewether said whatever the amount of share capital you might think fit to give them, you ought to fix their dividends at less than 10 per cent.

The CHAIRMAN: I do not think there is anything in this, for as it has been said before, if the London and North Western Railway paid 10 per cent. for 15 years, it might be urged that the whole of their capital was paid back again, and ought to be washed off.

Mr. PICKERING: The object is to show that 7½ per cent. dividend is quite enough.

The CHAIRMAN: But 10 per cent. is the limit in the general Act for all gas companies.

Mr. PICKERING: If your grace tells me that it would not make any difference to you, supposing the company had paid 20 per cent. up to the present time, as to what their future dividend shall be, I will be bound by it;

but what we say is, that a private body formed as this is, and having paid the dividends they have, it is rather hard for the ratepayers that they should be allowed 10 per cent. upon so large a capital.

The CHAIRMAN: If it can be satisfactorily proved that they have invested £60,000, and paid 25 per cent. upon it, it would not at all affect the question of what they should receive in future.

Mr. PICKERING: If your grace thinks that, I will carry it no further; that is the reason I gave this evidence; and, if you say that the amount received should not affect the question of the rate of interest for the future, I will not press it further.

The CHAIRMAN: I think, if £60,000 has really been expended in the works to the present moment, we must allow that £60,000; and, with reference to the dividend, must go upon the principle of what is generally given in other gas-works. In this case, it is only 10 per cent. upon a certain amount. The other money I suppose to be actually laid out upon the works; but, as they did not come to Parliament soon enough, it is said they should only have 5 per cent. upon that.

Mr. PICKERING: Then what we should say is, that, instead of £60,000, the sum actually spent on the works, is only £50,000, and that of that £29,000 is the share capital upon which the 10 per cent. should be allowed. Perhaps your grace will allow me to say that there are many instances in which, in the special Act, Parliament has not allowed 10 per cent. Where there is no limit in the special Act, no doubt they are entitled to that dividend; but there are many cases in which it is very hard upon the ratepayers that that maximum should be fixed.

The CHAIRMAN: The great protection of the ratepayers is the limit of price. You must recollect that, in this case, £21,000 invested in the works is to have only 5 per cent.

Mr. PICKERING: But what I mean to say is, that there is no general rule; each case must stand upon its own circumstances.

The CHAIRMAN: Perhaps you had better go on.

Examination continued: Assuming £29,000 to be the share capital at the present time—for it is a fact that £8000 and £2000 were never paid—the rate of interest was as follows:—In the first year, 1823, they divided 20 per cent. upon their then capital; in the second year, 15 per cent.; in sixteen subsequent years, 7½ per cent.; in the two following years, 10 per cent.; in 1844, 13½ per cent.; in the three following years, 20 per cent.; that is up to 1847. In the nine years to 1856——

Mr. LOCH: If this is the evidence of your witness, call it so; but do not let the committee suppose it is ours.

Mr. PICKERING: We take the per centage which it was clearly said they paid. There is no doubt they said it was paid upon a capital of £39,000; but we assert that the £2000 and the £8000 were not paid up at all, and consequently the share capital was only £29,000. We then take the actual amount of money which was paid to the shareholders, and upon that capital it works out the rates which the witness has explained.

Witness: In 1856, they paid 20 per cent. upon the £6000 old capital, and 7½ per cent. on £8000 of new capital.

The CHAIRMAN: What I understand you to say is, that you take the dividends they have paid, and which they say was so much upon £39,000; you alter it, and say it was so much upon £29,000?

Mr. PICKERING: I take the money actually paid, and say it was so much upon the smaller capital.

Witness: In the two following years, the dividend was equal to 22 1-6th per cent. upon the old capital, and 10 per cent. upon the new capital; in the two years to 1860, the dividend was 26⅔ per cent. upon the old capital, and 10 per cent. upon the new. The total capital up to that period was £19,000; since which £10,000 of new shares have been created and paid up, making the total capital £29,000.

Mr. PICKERING: Assuming the capital to be £29,000, what do you make the average dividend up to the present time?

Witness: Upwards of 17 per cent. per annum.

Mr. PICKERING: They are seeking to have 10 per cent. upon £39,000, as if it were all paid up; but, supposing the actual capital to be, as you put it, £29,000, instead of £39,000, in your judgment, perfectly independent of of what they have already received, and which you say has been 17 per cent., what would be remunerative to them as a body—what per centage upon the £29,000, less than 10 per cent., would be remunerative to them?

Witness: I should say it would be an exceedingly fair decision to allow them 7½ per cent. upon the £29,000 actually paid-up capital of the company, and on any subsequent amount which Parliament may decide as the amount which the company have actually invested out of profits, I think they ought not to be allowed more than 5 per cent. A large portion of the gas consumers are within the district of the commissioners. It is the amount of interest which Parliament allows the company to charge upon their capital which will, in fact, limit the price of gas. There is a very curious fact exhibited by this statement. The amount of capital, according to the books, at one time was £20,730; the actual amount of capital paid by the shareholders was £8000, and in that year they repaid themselves £2000. During the period up to 1849, according to the ledger, the expenditure upon the capital account was in excess of that which was stated to be the paid-up capital by £15,000. £15,000 of the £39,000 has been called up and paid within the last three or four years. The shares were sold at par, and would have fetched more if they had been sold by auction.

Lord FALMOUTH: What are the shares selling for?

Mr. LOCH: The £20 shares are selling for £37. 5s.

Examination continued: At the time the company created 250 new shares, which they divided among themselves at par, there was a balance of £6152 in hand, according to their own books.

Mr. LOCH said there was a very great inconvenience in this mode of conducting the case. The witnesses for the promoters were not asked one question on this point, or they would have been able to explain how it was.

Mr. PICKERING said it was rather ungracious to make a complaint of that kind, as the petitioners had been only able to get this information by an examination of the books.

The CHAIRMAN: That shows that we ought not to have let you have them.

Mr. LOCH: The fact is quite as you state, but that is not the explanation.

Cross-examined by Mr. LOCH: I do not think it at all extraordinary that a company like this should have a large balance at their bankers. The existence of a balance in hand at the time they created the new shares was not an extraordinary circumstance. I believe at that time they were contemplating an extension to Lockwood. That may account for the creation of £5000 worth. I see no impropriety, in a company constituted under a voluntary agreement, dividing new shares among the existing shareholders, when their original shares were at a premium. It is not the fact that railway companies, in such circumstances, allot new shares amongst their proprietors at par, except in reference to preference shares. There has no doubt been an increase in the consumption of gas at Huddersfield. I am not prepared to say that that may not account for the necessity of creating £10,000 worth of new shares. It is probable it would, especially if the company had to pay off a debt of £5000 previously incurred for that purpose. Admitting all these circumstances, it may account for the creation of the whole £15,000 so created. I have not said anything to impugn the statement that £15,000 was called for, and legitimately expended; I merely directed attention to the fact that that amount of new shares had been created at a very recent period. I should not be surprised to hear that the income of the company in 1823 was £762, and in 1844, £3767; nor that the amount of dividend in 1823 was £680 out of the £762, and, in 1844, only £800 out of £3767; but I have had no opportunity of forming a judgment upon it. It does not necessarily require an increase of the works to enable the company to increase the production of gas and their profits. I can give illustrations of cases in which there has been a large increase of consumption, and yet no increase of capital. There must have been some extensions at Huddersfield. The price of gas, having been reduced from 10s. to 4s. per 1000 during that period, implies a very large increase in the production of gas, and, consequently, an extension of the works. There is no doubt that, in the early history of gas-works, the companies did apply profits to extensions; but you cannot find me a single instance where the proprietors divided such large profits amongst themselves, and yet expended so much upon the works. I was for sixteen years treasurer of the gas-works at Salford, and am now a member of the corporation. In the Salford Gas-Works, after making reasonable deductions for wear and tear and interest on capital, our net profits were 10⅝ per cent. upon the capital employed; but that capital had been subjected to proper annual deductions for depreciation and wear and tear. During the last year, in which we made 152 million cubic feet of gas, our capital invested was £70,000. Now, it is well known that our pipes, extending over an area of something like six miles, are sufficiently large to supply a greatly increased district; and a very small additional expenditure of capital would enable those works to produce double and treble the present supply of gas. The profits of the Salford works, after deducting charges for depreciation, and paying all expenses, including interest, ranged from 10 per cent. in 1843, up to 18 per cent. in 1854. I should just like to make this remark, that, in comparing the Huddersfield works with the Salford works, I hold, contrary to the opinion of the engineers who have been examined, that corporations do manage gas-works better than joint-stock companies. You cannot produce me a joint-stock company whose balance-sheet presents so favourable an aspect, as that of the Salford corporation. The charge for gas at Salford, is from 3s. 6d. to 3s. 10d.; it was reduced to that twelve months ago. I understand 3s. 6d. to be the highest price charged in Huddersfield. With respect to the £2000 repaid to the proprietors, I deduct it from the capital in accordance with the resolution of the company. I have heard it referred to, as being called in another book a bonus to proprietors. I should have taken it as a bonus if it had not been called a return of capital in the official document. I am quite willing to take it as you put it; but, I think it is quite justifiable to reckon it as capital. Supposing the word bonus had been used in both books, I should simply have taken it as so much divided among the shareholders in the year. In cases where companies apply part of their profits in extension of works, Parliament always makes the difference which we are seeking to have made in the rate of dividend by our opposition. Assuming these books to have been honestly kept, I discovered that £20,730 had been expended as capital up to 1844, and that up to that period the shareholders had been receiving dividends only upon £8000. In reference to the items which have been struck from the capital account in 1831, I should say that ovens are chargeable to wear and tear, but they may be placed to capital when they are for the purpose of extension. The company have been increasing from year to year, but they cannot have been getting new ovens every year to the extent of these charges, especially when there is no charge for ovens in the revenue account. I have only made a cursory examination of the books, but I could go on for two horus pointing out items so charged. The auditor's report was for one half year, but my examination of the books proves that the same remark applies to other half years.

The CHAIRMAN: Is there anything to show that these were new ovens, or for the replacement of old ones?

Witness: There is not, my lord. There is no item for new ovens at all; it is only for the patent right of using them.

The CHAIRMAN: That is clearly a capital charge if it is a permanent right.

Cross-examination continued: With reference to the payments to Cliff for retorts, I do not attach much importance to them, because the invoices could not be found, and it is impossible to say whether they should go to capital or revenue. What I said was, that of 47 items charged to capital, amounting to £577, there had been deducted £84. 11s. 1d.

Mr. LOCH: What motive could there be for doing so?

Witness: My experience, which will be confirmed by every experienced accountant, is that in looking at gas-works management we find they have all endeavoured to overload the capital.

Re-examined by Mr. PICKERING: I find in the ledger for 1831, that an attempt was once made by an accountant to distinguish between capital and expenditure, but it appears to have been a failure. It does account for some items, but it has evidently failed, for it has never been cast up.

Mr. LOCH objected to this evidence, which he said ought to have been gone into in the examination in chief.

The CHAIRMAN said it was a very fair objection, for it might have been shown that, if the amounts had been added up, they would make up the sum referred to by the company.

Mr. LOCH said he was told that, since the bill was presented to Parliament, the gentlemen who examined the books intended to commence and write out the whole thing *de novo*, but had not time to complete it.

By Mr. PICKERING: There are items in every half year's account which are charged, and evidently not deducted.

By the CHAIRMAN: It is impossible at this period to say what the money was expended for, but the items occur so frequently that they must have been for replacements.

By Mr. PICKERING: The illuminating power of the gas at Salford is 20½ candles upon the average. The value of gas is always in proportion to its illuminating power. As compared with the price of gas at Huddersfield, the price in Salford is very much less. The latter works have been in the hands of the corporation for thirty years, and at Manchester for thirty-seven years. The whole of the profits of the Salford works, during that long period, have been expended for the benefit of the whole of the inhabitants in making improvements in the borough. I have always found that gas-works, in the hands of corporations, work better than when in the hands of private companies; certainly, it is more beneficial to the inhabitants.

Mr. *John Booth*, examined by Mr. PICKERING.

I live at Huddersfield: I became a shareholder in the gas company about 1832 or 1833, and remained so until 1856. I was a director during a part of that time. I am not a shareholder now. The reason of my leaving the

company was that there was a difference at the board for one thing, and a difference with the manager for another. I differed with them as to the mode in which the books were kept, as they were altered by the manager without the orders of the board. While I was a director, I tried to make out a capital account from the books, and was assisted by another director, Mr. Oakes; but we gave it up, as we could make nothing of the books, so far as we went.

By the CHAIRMAN: I became a director in 1846 or 1847, and this attempt was made a year or two afterwards. I have here a paper, which we made at the time. It is in Mr. Oakes's writing.

Mr. LOCH: I object to the paper being produced, unless you can swear to the contents of it.

Witness: I can swear to its being Mr. Oakes's writing.

Mr. LOCH: Do you swear to the truth of it?

Witness: I do not believe it is true.

Examination continued: We had the books before us at the time, and this paper was written in my presence. The intention was, to ascertain what the capital account was, if we could; but the items were so mixed up that we found it impossible to do it, and we gave it up when we arrived at the year 1829. In fact, it is impossible to make up a capital account from the books as they were kept; and there is another difficulty, that nearly the whole of the first items charged have gone out of existence. The reason I said this paper is not right is, that I do not believe the items really and truly do belong to capital; but there was nothing on the face of the books to tell what they were.

Mr. PICKERING said he was now going to show by evidence what was the actual cost of some of the works which Mr. Barlow had estimated. This witness, however, could only speak to one or two things.

Examination continued: I was a director of the company at the time of the contract for the iron-work of the roof of the new retort-house. The contract was taken by Harrison and Hollingshed, but the actual cost for the coal-shed and the retort-house together was £492. The contract for the slating, which was done by Goodwin, was £296. The plumbing was done by Mr. Haley.

The CHAIRMAN: Are these the works which Mr. Emmott said he could not give the items of, but he knew the whole cost was about £17,000?

Mr. PICKERING: Yes, I believe they are. (To witness:) Have you examined Mr. Haley's books?

Witness: I was one of Mr. Haley's executors. The contract for plumbing appears, from the entries, to have been £187; but, not being conversant with his books, I have put it down at £250.

Mr. PICKERING said that neither of these papers professed to show the whole £16,000, but only a portion.

Mr. LOCH said the question was put to the witnesses for the promoters, as to the estimate of the cost, but there was no cross-examination to lead them to suppose that the commissioners were going to dispute the accuracy of the charge. Had that been done, he should have produced a statement making up the whole sum; but, how they were to get at that from adverse witnesses, he could not possibly conceive.

Mr. PICKERING said he was surprised at the objection. If the company would only give him, from their own books, a statement of what they paid to these persons, he would accept it at once. The only evidence the company gave was an estimate of Mr. Barlow's; and the only witness from whom he thought he could get the actual cost was Mr. Emmott; but all his inquiries on the subject were met with "*Non mi ricordo.*"

Lord FALMOUTH: Do you mean us to assume that £250 was the actual cost, or that that is what you find in Mr. Haley's books?

Witness: I can only find £187 in his books; but it is very possible I may have missed something, not being conversant with his trade. As a matter of fact, it is £187; as a matter of opinion, I have put it down £250.

Lord FALMOUTH: Why do you say the actual cost was £187, and why do you assume that £250 was paid? Do you mean that it must have cost £250?

Witness: The contract was principally lead taken by the stone, and I was not able to separate between that supplied for the construction of new works and the repairs of old; and, finding £187 set down for new works, and £74 for old, I thought to be more liberal by placing it all to new.

Mr. PICKERING: Do you remember the contract for the gasholder?

Witness: Yes; it was for £4363.

Mr. PICKERING: I see Mr. Barlow puts it down at £6447 in his estimate.

Mr. LOCH: Mr. Barlow did so in his valuation of 1859; but, you will recollect that, he stated in his examination here, that he was in error to the extent of £2033, and that being deducted from his original estimate brings it down to about the amount mentioned by Mr. Emmott.

Mr. PICKERING: Notwithstanding which, it is a remarkable thing he has not deducted it from the sum total.

Mr. LOCH: Yes he has.

Examination continued: In addition to that item there were several other things, coming to about £30. The contract for the chimney was £200 and £15 for extras. The contract with Graham, for the masonry of the tank, was £1454, and there were some extras, but I cannot tell the exact amount.

Cross-examined by Mr. LOCH: I said the first contract for the tank was for £1454; I did not say that was what it cost. I should think the extras were about £100—not quite so much. There was a well in the centre of the pit, and two additional columns to the gasholders; there was also the expense of pumping; but I have no estimate of those. I was a party to letting the contract for the pit. The sinking of the well would be very little expense. The engine, boiler, and bed, all complete for pumping, cost £70; that is not a part of my estimate. I have not got £71 for wages, nor £58 for coke used in pumping. I have not taken into account the money spent in oil and tallow, or men's time for puddling, &c., £226. I have not included £104 for the retaining wall, because that is not a part of the tank. I have not taken into account the charges incurred by the clerk of the works, £58. 10s. I have not included the drains and pipes, my estimate includes only the mason's work. I do not know whether the books show that the actual expenditure upon the tank was £2149. 19s. 8d. I do not believe that it did cost that.

The CHAIRMAN: It may have cost the company more.

Mr. LOCH: It is true that £215 was the contract for the chimney, but there was the addition for a lightning conductor.

The CHAIRMAN: I think Mr. Booth's evidence amounts to nothing at all. He only speaks as to what the contract was, and there may have been many other things which bring the amount up to 20 per cent. above that, so these statements are worth nothing.

Mr. PICKERING: I quite admit that; but I am placed in this position—assuming that the books are not satisfactory, the cost is matter of opinion, and I can only go by steps.

The CHAIRMAN: This was put in as "actual cost;" but, when it comes to be examined, it does not include many things.

Mr. *Abraham Graham*, examined by Mr. PICKERING.

I had the contract for the masonry of the retort-house, coal-store and purifying-house, meter-house, engine-house, and exhauster-house, which, with extras, amounted to £1082. 7s. 10d. I had another contract for the chimney, amounting to £200; and, to raise it 10 feet higher than the contract, I charged the company £15 extra. There was no other charge but for what I did, except the clerk of the works. I do not know whether there is a lightning conductor; it was no part of my business to put one up. The company paid for the pumping. The original contract for the tank was £1454, but I got £1533. 1s. 8½d. One of the people belonging to the company tried to steal £700 from me one night.

Cross-examined by Mr. LOCH: It was Mr. Kaye who wanted to steal £700 from me. He wanted to make the company think I should not get the work finished, and to take the work out of my hands, when I had done £700 or £800 worth. I said, "You are too late in the day; and you have got the wrong man." My estimate for the retort-house, as delivered, was £705; but, with the extra foundations and tar well, it was £1082.

The CHAIRMAN: The fact is, he did nothing but the external walls and foundations, and all the slaters and joiners, &c., must be extra.

G. W. Stevenson, Esq., examined by Mr. PICKERING.

I am a civil engineer, residing at Halifax, and am engineer to the corporation of that town, and manager of the gas-works, which are the property of the corporation. The illuminating power of our gas is from 16 to 18 candles; and the maximum charge is 4s., with a discount to large consumers. The possession of the works by the corporation works well for the benefit of the inhabitants. The profits, in the first place, go to pay interest on the capital, and are then divided in certain proportions, as directed by the special Act of Parliament, partly in aid of the rates, and in effecting improvements. During the last four years, the works have been almost entirely reconstructed, and the mains and pipes laid entirely fresh, all from my plans, and under my superintendence. This has given me a peculiar opportunity for forming a judgment respecting the cost of gas-works, especially in that district. I was engaged with Mr. Barlow in 1859, to make an estimate of the commercial value of the Huddersfield works, instructed by the commissioners. We saw some of the directors of the company, and for our own convenience we handed them a schedule of questions to which we wished replies. Those replies were all given, with the exception of one relating to the profit and loss, which they refused. We took their answers as correct, having no reason to doubt them. I do not think we examined any books. We made an estimate of the income and expenditure for the year 1858, and the figures given by Mr. Barlow as to that estimate are correct. We also formed our opinion as to what capital would be required for carrying on such works, which we put down at £3500. I cannot particularly remember whether we knew that the rents were collected half-yearly. If collected half-yearly, it of course makes a difference as to the amount of capital required. I think in such a case £5000 would be plenty, because the £3500 was clearly intended to cover the gas-rents of a winter quarter, and the other capital necessary for coals, and sundries, and carrying on the undertaking. The same sundries and coals would be required in stock in other quarters, but the gas-rents would be very much less, so that you would not require to double the working capital, but add to it in proportion to the summer rental with the winter. It is in the power of gas companies to collect their rents quarterly, or monthly if they like. We went through the Huddersfield works, and made a structural valuation which comes to £45,649, taking it as new and exclusive of meters. From that sum there are deductions to be made for depreciation. In 1859, Mr. Barlow calculated the depreciation himself, and I did not check his figures. It amounted to £4699, leaving the then present value at £40,950. In that amount a mistake which was made in the value of the gasholder is not corrected. The total cost of the meters, as given in evidence by Mr. Unwin, was £6308. I have not the exact figures for the additions since 1859, but it is something like £6500; and, taking these sums together, they amount to £53,758.

Lord FALMOUTH: But you have not deducted £2000 for the error in the gasholder.

Mr. PICKERING: No; not at present.

Examination continued: The amount we agreed upon in 1859, for the retort-house, coal-store, purifying-house, meter-house, exhauster-house, foundations for the retort-house, chimney, &c., was £14,260; but, taking the statements of those who did the work, they cost very much less than we put them down at. I think they were done very cheaply if they were done for that; and, in order to allow a margin, I would add 10 per cent. to their cost. I should make the £8706, which is said to be the figure, into £9576, which shows an excess in our valuation over actual cost of £4684; to that I should add, working capital, £5000; making together, £54,628, which is assuming the meters to be new. In 1859, Mr. Barlow and I wrote off one-half of the original cost for depreciation, and I should do the same now, but, inasmuch as many new meters have been put up since 1859, I should only deduct 30 per cent. At Halifax and Huddersfield, the works are nearly the same size, and we have never had so much as £5000 of working capital.

By the Committee: We collect our rents quarterly. Our floating capital is £4000, which is much as we ever have owing.

Cross-examined by Mr. LOCH: I have heard it stated that the floating cspital at Huddersfield is £10,000. At Halifax, last year, we sold and used 84 million cubic feet of gas, and we made nearly 93 millions. Our works are not in full operation at present; we are extending them considerably. They are constructed, as far as I recollect, to produce 2¼ million feet per day, or 338 millions per annum. I cannot give you exactly what it is at the present moment. We have just destroyed a large retort-house, and our works are in a transition state. I should think the produce is now about 700,000 or 800,000 feet per day. Our storeage room is not in proportion to the manufacturing power of the works; it is only about 300,000 feet. At Huddersfield, it is quite double that. Until we obtain new storeage room, we cannot employ the whole power of our works. We are now spending money in increasing the storeage. Our capital is now about £70,000, and we are expending about £10,000. The population of Halifax proper is about 38,000; Huddersfield is only about 26,000.

Mr. LOCH: I am told that the borough of Halifax contains only 34,000. What is the population of the whole district you supply?

Witness: Perhaps 60,000.

Mr. LOCH: You are aware that the district over which the Huddersfield company have power to supply is 70,000?

Witness: It is a very extended district.

Mr. LOCH: Is it not the fact that your works were originally constructed on a much smaller scale by the company, and that their share capital was about £15,000?

Witness: They commenced with £15,000. I do not know what the share capital was at the time the works were purchased by the corporation. The

corporation paid £37,000 for the works, which is the cause of our capital being so high.

Mr. Loch: How do you account for the difference between the £15,000 and £37,000?

Witness: I am not called upon to explain it. There is a difference between the share capital of a company and the commercial value of the undertaking. I do not consider that the corporation paid too much for the works, with the transfer from the company of all their rights and privileges. If you were to ask me whether it was too much for the works alone, I should say, it was. Since then, we have expended the difference between £37,000 and £70,000; but whereas, when the corporation took the works and paid that money, they realized only 6 per cent., we now realize upwards of 10 per cent. upon the £70,000. I cannot tell the length of our mains. As to floating capital, I think £5000 is a sufficient estimate for Huddersfield. The floating capital includes the stock of coal on hand, as well as the debts out; but gas companies are not required to pay for their coals on delivery—they convert them into gas, and that gas into money before they have to do so. I should not have a stock of coals on hand at Midsummer, more than just enough to go from hand to mouth. I should begin to accumulate stock at Midsummer, and increase it up to November; but I would work down, and get rid of it by Midsummer again, so as not to have the coal deteriorated. In winter, you must always have a stock by you. It has not been always the case in Halifax. It is not a fact, that the town was in darkness for some days last winter. It was in darkness one night and two days, in consequence of all our coals having been purchased of one contractor, who had a strike among his men, and was not able to send in a proper supply; also, in consequence of our storeage for coal being limited. We had then a coal-store building for 300 or 400 tons.

By the Chairman: The contractor was sending us coal every day, but not in sufficient quantity.

By Mr. Loch: When Mr. Barlow and I entered upon the valuation in 1859, we went into the commercial value, but it was necessary for us also to ascertain the structural value, in order to know what should be written off for depreciation. We were instructed to advise the commissioners what the commercial value of the undertaking was. I agreed with Mr. Barlow, that with gas at 4s., and coals at 7s., the commercial value was £89,266.

Mr. Loch: When the gas company abandoned the £89,266, and consented to take £63,000, you were in favour of the commissioners giving that sum?

Witness: I never heard that they did abandon the £89,266, and ask to be paid on a structural value. The fact was simply this, that, after our commercial value had been ascertained to be £89,266, we were informed that the undertaking was under offer for the sum of £63,000—for that sum the company said they were ready to transfer all their rights and powers. We thought it a fair thing for the commissioners to pay, and for the company to receive. Since that time, there has been £6500 laid out by the company. Of course, if the commissioners had given the £63,000, they would have required a floating capital in addition. I estimate the depreciation as Mr. Barlow, and I agreed with him upon the subject in 1859. Our maximum price of gas at Halifax is 4s. by Act of Parliament, and we charge up to our maximum to small consumers, and 5s. outside the borough, with discounts to large consumers.

By Lord Falmouth: The public lamps are supplied at cost price. I think they are charged 30s. a year for 3300 hours; which is 19·89 pence per 1000 feet.

By the Chairman: The contents of No. 4 gasholder at Huddersfield are 386,850 cubic feet.

By Mr. Loch: The 19·89 pence per 1000 feet for the public lamps is the cost at the point where the gas is consumed. The illuminating power at Halifax is fixed at 12 candles—wax candles. There is a slight difference between wax and sperm, but it would not make half a candle difference either way. I am aware that the requirement upon the Huddersfield company under this bill is 14 sperm candles.

Re-examined by Mr. Pickering: The illuminating power which we actually supply is from 16 to 18 candles; the public would not be satisfied with less. The Huddersfield company actually put the commercial value of their undertaking, in 1859, at a less sum than they claimed for the structural value of their works in the House of Commons. The structural value of the works at Halifax, for which we gave £37,500, was only £11,131. I have to correct the evidence which I gave on this point in the House of Commons. I said then it was £26,369; but I had got the wrong figures. The £26,369 was the difference between the £11,131, which was the structural value of the works, and the £37,500 which we paid. Taking the £11,131 as the value of the works, and adding £1000 for meters, £2000 for mains, which were not destroyed, and £500 for services, it brings the gross structural value of the works at Halifax, at the time of their transfer to the corporation, to £18,631, for which they paid £37,500. In fact, the structural value was one-half the sum they paid.

Mr. *George Anderson*, examined by Mr. Pickering.

I have been largely engaged in the construction of gas-works during the last fifteen years, am consulting engineer to several companies, and myself hold three works upon lease. I am practically acquainted with the whole question of gas manufacture and supply. I have visited the town of Huddersfield, and made myself acquainted with it, for the purpose of this inquiry. I put the structural value of those works—taking the estimate of Mr. Barlow and Mr. Stevenson—at £45,000, which includes all that they put, at £60,000. For the purpose of convenience, I took the items of Mr. Barlow's evidence, and, what he has put down at £45,000, I put down at £34,540. To that I add meters, mains laid since his estimate, and floating capital—making together £45,037. The floating capital I allow is £5000. I should collect the rents quarterly, and have put down the capital with that view. I do not approve of half-yearly gas accounts. In all the gas-works with which I am acquainted the rents are collected quarterly, and sometimes at shorter periods. I put down for things since added—mains, £3500; and meters, £4297. I have taken the meters—good, bad, and indifferent—at £1 each, which, I think, is a fair way to do it. I should state that to this £45,037 there would, of course, be engineering expenses to add—about £3000.

Cross-examined by Mr. Loch: I have been in Huddersfield once or twice, and stayed there some days. I was told by the solicitor of the opposition to this bill that application had been made to the company for leave to go over the works, which had been refused; and I, therefore, did not ask to go over them. I simply saw them from the neighbouring ground. The ground all round is higher, and there is very good facility for seeing them, as the works, in many places, are not bounded by a wall. My calculations are founded upon general experience of works which have been in existence the time I find these have been. The £4297 which I gave for meters would not represent what they cost the company when new. Whatever sum is authorized to be expended under an Act of Parliament, will always remain as the capital of a company; but the works would have to be replaced out of revenue, from time to time, to keep up their proper value.

Mr. *Alfred Penny*, examined by Mr. Pickering.

I have visited Huddersfield, and made myself acquainted with the town. I have not been inside the works. I have formed my estimate of their value from the figures supplied by Mr. Barlow and Mr. Stevenson. I have taken out the quantities, and made a valuation of the works as they stood in 1859, which I say was £33,379.

The Chairman: Do you mean to say that, if built in 1859, they would cost that?

Witness: I have taken, first, the cost of the works, and deducted from that a sum for depreciation. To that I have added £6411, that being the amount stated in evidence to have been expended since in new mains and meters, making together £39,790. I put the floating capital at £5000, assuming the gas-rents to be collected in the ordinary way. I never before heard of their being collected half-yearly.

Cross-examined by Mr. Loch: I have taken my quantities out so fully, that I believe they will cover everything on the works. It was not done upon actual inspection. I have not made any addition for engineering expenses. It is a very difficult thing to estimate the depreciation of buildings without actual inspection, but I have made a calculation.

Mr. *John Crawshaw*, examined by Mr. Pickering.

I am a commissioner of Huddersfield, and a gas consumer. There is a very strong feeling in the town upon this matter. Meetings have been called on requisition to consider it, and resolutions adopted to oppose the bill. The objection of the inhabitants is to the outrageous capital proposed by the company, and they think they are giving too much for the article produced.

Cross-examined by Mr. Loch: The consumers have left the opposition in this House to the commissioners, simply because they were told that they had lost their *locus standi*, by appearing on clauses in the House of Commons.

Mr. *Keighley*, examined by Mr. Pickering.

I have been chairman of the Huddersfield commissioners since June last; and am an extensive gas consumer, There is a strong feeling in the town respecting the powers the company are seeking, both as regards the amount of capital and the rate of dividend. Two years ago, the commissioners thought it desirable, as representing the ratepayers, that the works should be in their hands; and negotiations were entered into with the company, which resulted in an agreement for the purchase, subject to the approval of the ratepayers. That approval was not obtained, and the bargain went off. When the company introduced this bill, without consulting us, in which they sought to have their capital declared at £67,000, and their maximum dividend 10 per cent., the commissioners felt that they would not be doing their duty if they allowed such a bill to pass without their interference, as the company had the year previously offered their works for £63,000, and agreed to allow a good portion of the money to remain in the hands of the commissioners, at 4½ per cent.

Cross-examined by Mr. Loch: We should have applied for powers if we could have done so this year. I was not chairman of the commissioners in 1859, but I recollect the offer of sale for £63,000, and I thought it a fair thing with the knowledge we then had. I was aware that that £63,000 did not include any sum for floating capital. I know that it is said upwards of £6000 have been expended since, but I think I have a right to suppose that is not correct, as part of the expenditure is for increasing the size of the mains. I think it is a matter to be surprised at, that the company should come to Parliament without consulting the commissioners, as they are the representatives of the public, and the gas consumers have never been in hostility to the company. In my opinion, we ought not to have been their opponents, but supporters in getting their bill. I did say, on one occasion, "that the gas proprietors had met the commissioners in a fair, reasonable, and handsome spirit, and having done so, the commissioners had met them in the same way, and that the pressure of a parliamentary contest to dispossess the company was no go." The meaning was, that they had no parliamentary powers, and if we had made an application to Parliament with them we should have stood a fair chance, and we had told them so. I believe the company lay their mains by an amicable arrangement with the commissioners; the commissioners own workmen do it, and they pay the cost price of the labour. They pay 12½ per cent. upon it for the management and expenses of the commissioners; but they do not pay anything for damages to the streets in taking them up.

Mr. Loch: In what better position should you be in that respect, if the works were in your own hands?

Witness: We should make a handsome profit out of the gas.

Re-examined by Mr. Pickering: We were most anxious to avoid the expense of a parliamentary contest; and, therefore, we sought to make an examination of their books.

Lord Falmouth: Do you think you could supply gas much cheaper if you had the works in your own hands?

Witness: No doubt we could, and make a profit at the same time.

Mr. Pickering: And whatever profit you made would go, not into your own pockets, but be applied to the benefit of the inhabitants?

Witness: Yes.

Mr. Loch: The benefit of the ratepayers within your district?

Witness: Yes.

Mr. Pickering: Who are the larger proportion of the consumers?

Witness: Very much larger.

This closed the case of the opponents to the bill.

Thursday, May 16.

Mr. Hope Scott replied upon the whole case. He said that he appeared in support of the preamble of the bill, and that the immediate question for discussion had been adjourned from the House of Commons to a committee of the House of Lords. The terms of the bill, although these were not the terms which represented the true state of the case, were known to their lordships; but the particular paragraph of the preamble which was most important was this. After setting forth that the sums expended on the construction and extension of the works amounted to £60,000, the preamble proceeded:—"And whereas, since the first registration of the company, they have created shares to the amount of £25,000, and the present share capital of the company, so increased, amounts to £39,000, and the balance between the said sum of £60,000 and £39,000, amounting to £21,000, has been supplied from the profit of the undertaking divisible among the shareholders, and the company are desirous of creating shares to represent that amount," and so on. This raised fairly, except in point of amounts, the question which their lordships would have to determine in respect to the present application and opposition, and in which he asked them to have it declared whether the £21,000 was divisible among the shareholders, and

whether the company could create shares to represent that amount? Now, in dealing with this question, he complained—and he felt he had a right to complain—of the mode in which the company had been pursued by the opposition from one House of Parliament to the other. In the House of Commons, they had been attacked by one body calling themselves the Huddersfield commissioners, and by another body calling themselves the Huddersfield consumers; and both these bodies had conducted their case before the committee of the House of Commons, until at length they retired from the contest, when the preamble was declared to be proved. Now, it was very well known, and, according to the invariable practice of that House, it was admitted, that parties who opposed the preamble, and who had been defeated upon the preamble, in the House of Commons, were precluded from again opposing the preamble in their lordships House, because they had been defeated on the ground they had originally occupied, and had reduced themselves to a position from which they could not recover a *locus standi*. Now, in order to guard against being precluded in that manner, the commissioners were asking for what they called justice, and the consumers, who had throughout identified themselves with the commissioners, were now desirous of severing the connexion, and, by means of that severance, they sought to reserve to themselves the right of petitioning their lordships, and of getting certain clauses inserted in the bill. Now, this was not a fair way of conducting business. It was not fair because it evaded a rule, and a very salutary rule, which had been made in their lordships House; and he said, without hesitation, that in this case the opposition was endeavouring, by means of this severance, to carry out their intentions by a manœuvre which ought not to be allowed. He was told that there were other consumers in the case besides those who had originally come forward. In this opposition there were the commissioners, and also the consumers. Of course, it was perfectly legitimate for twenty persons to come forward and say that they represented twenty of the consumers; but then, after that had been done, were twenty others to come forward, and so indefinitely to prolong the investigation? Were a new party, professing to be a new party, but not in reality differing from those who had preceded them, thus to be permitted to come forward, and continue the opposition? Substantially, the question had been tried in the House of Commons upon the preamble and the clauses, and, doubtless, their lordships would now feel it their duty to support what had been resolved upon in the lower House. The company he had the honour to represent had existed since 1821 as a private company. It was not constituted by Parliament; it was not owing anything to Parliament; it had no capital defined by Parliament; no limitation on its dividend had been imposed by Parliament; it had not been subjected to any of the restrictions of Parliament; and in that company, so constituted, there were, of course, at present many shareholders who had purchased their interest in the undertaking at the market price of the day. Between the years 1821, when it was formed, and 1861, of course enormous changes had taken place; but the present representatives represented the full commercial value of the undertaking. Now this company, so formed, and having so long existed, came before the committee of the House of Lords, as they had already come before a committee of the House of Commons, and asked for certain privileges, professing their willingness, in return, to submit to certain restrictions. They came to surrender their liberty, so to speak, on a grant being made of certain privileges to them; and the question, among others, was this: the point at which the capital should be fixed. They alleged that they possessed a capital of £60,000. The opponents came forward and told the committee that they desired to purchase the works; they had stated in their petition that they wished certain clauses in the bill to be revised and improved, and they were coming before the committee for powers to purchase, and endeavouring to have the capital fixed at the lowest possible scale. The meaning of this was simple: capital did not fix value. If Parliament, on any occasion, adopted a particular fixed scale of capital, that had to do with the *primâ facie* value of any commercial business for purchase or sale by other parties, in order to be purchased; but, as regarded the question of parliamentary capital, it did not fix value. Suppose an undertaking to be started on £100,000, and that the company spent that amount, and that the profits did not represent more than £50,000, the committee would, of course, go on reciting at all times that the capital was £100,000; and, if the profits yielded only 3, 4, or 5 per cent., the undertaking would be worth no more than it would fetch in the market. In that respect, then, capital did not fix value. Capital was determined by Acts of Parliament on this account:—Companies were the creatures of Parliament, and it was essential to define their powers. Accordingly, Parliament wished to assure the public of the resources of the company, wished to be assured itself, and wished to assure others, and especially lenders of the amount they had advanced, and of the security they possessed; and, therefore, the capital was fixed by Parliament. When that was once done, the company became a company of the creation of Parliament, and of course the power to raise further capital did not exist; because, the company having been formed by Parliament, any excess of its powers beyond those granted to it would be illegal, any additional capital so obtained would be worthless, and the money borrowed would be without any security for its repayment. It was a creature of Parliament; Parliament defined its capital, and any excess was illegal. Well, then, if a company wanted further capital to extend its works, its duty was plain and obvious; it must come again before Parliament. Being a parliamentary company, it came before Parliament again, at a later date, and said—"Create us so much more capital, to cure the blot, to remedy the defect, to make good the transgression, in a parliamentary sense, of that which the company had in the first instance committed. Parliament designed that that should be a company with a certain limited capital. For a time, the company went on increasing that capital, and then it came and asked Parliament to capitalize what it had so increased. That was to neglect what Parliament had designed. But, yet, these cases were constant. In all the old parliamentary companies, the committee would find that they had expended largely out of their revenue, and that they did come before Parliament, and that Parliament constantly capitalized that expenditure. And yet, in these cases, the companies had been acting against the known sense of Parliament—for Parliament had defined their capital—and then they came back under the circumstances he had stated, and said, "We do not come to ask for any very great powers, we merely come to have that which we have done in capitalizing expenditure settled in our favour." And Parliament did that constantly. There was hardly a gas, or water company in the country with reference to which that had not been done, and what Parliament had to see in every such case was, that the money had been *bonâ fide* expended. Here, in the case of the Huddersfield Gas Company, Parliament had not interfered with it yet. It was a private trading association, existing in common law, and under a Registration Act without any restriction. Let the committee observe the position of a private partnership like that. It was like an ordinary trade. The parties agreed to put in certain capital. More capital was needed. They said to each other, "Shall we put in more capital, or forego the profits of the undertaking for a time, so as to increase therefrom our stock?" This was done daily in private partnerships. It was done in this instance. They had a certain revenue, and it was immaterial to them whether that was divided over a large or a small amount of capital. It was, therefore, a matter immaterial whether they divided 20, 30, or 40 per cent on a small capital, or 5 or 6 on a large one. In fact, whether they chose to use those profits out of capital without calling it capital, or whether they chose to raise capital by diminishing profits, was a matter on which they were free to exercise their discretion, violating no law, but acting as commercial men. Well, now, proceeding in that way, they found that they continued for some time with a very low capital, but with a constant expenditure going on out of the undertaking. If the question were asked, what was their capital, they would naturally answer that they would take an account of their stock, estimate the value of their works, and so come at their capital. Accordingly, in the year 1846, they did that; they then took an account of their property. They had not distinguished between capital and interest up to that time. They found they had expended over and above in excess of their capital, and they, therefore, subscribed profit upon capital, and so the first £8000 was created. His friends opposite had spoken of a payment of £2000 out of capital among the shareholders, which had taken place three years before; but, however that might be, it was very certain that the concern was one in which there was no fixed dividend. Under those circumstances, of course, the matter might have gone on indefinitely, without any fixed capital being settled on the concern. The real representative of value was the stock embarked, and the real measure of value was the profit on that. The company were now driven to come to Parliament. He said driven, because the undertaking had grown to such a size, that they must come before Parliament for extended powers. And he begged to be allowed to say here that of the intention of the company to apply to Parliament, the opposition had full notice in the year 1859, for a speech was then made by one of them, which showed that they then knew perfectly well that the application would be made. This being so, the question now was, what should be the capital of the company hereafter, and how were their lordships to proceed in regard to that matter? Well, as he had already said, there being no existing Acts of Parliament under which the company had carried on the undertaking, what had been raised and spent must be treated as the capital of the company. Suppose they came there with a nominal capital of £100,000, and raised only £50,000 of that amount, they should be put to the proof of all that they had raised and spent. If, on the other hand, they had raised the £100,000 in full, although that might not represent at the present £25,000 in value, yet that would be fixed as the capital of the company. Where there was a parliamentary capital, that must be taken as the capital of the company, whatever the present value of the undertaking might be. Whereas, on the other hand, if there was a capital which had not been raised or spent—if a capital had been raised to the extent of £50,000 instead of £100,000—then he had intimated the mode in which it should be disposed of. It was only necessary now that he should contend for this—that the actual raising and spending of money was the essential principle on which Parliament acted; that they legislated in all cases where the excess of the expenditure had arisen under parliamentary enactment; and this was the course which the company proposed to take under the present bill. The bill proceeded upon the recital of actual expenditure out of profits, over and above the actual capital raised by the capital. This matter of expenditure out of profits was one of total indifference to the shareholders and to Parliament, and would, of course, continue to be so until parliamentary fetters were imposed upon the company. Now, how were the company to proceed? How otherwise than by showing the actual expenditure? What, then, had been proved? Their lordships had heard the evidence of Mr. Unwin, that the actual expenditure on capital account, which he obtained from the books—and he had been examining the books, not only before the bill went before the committee of the House of Commons, but up to the last moment—he had assured their lordships—and assured them in as clear and decisive a manner as possible—that he found the expenditure to be £67,680; whereas, the actual share capital was only £39,000. The difference between these two amounts was due to payments made out of profits, which might have been divided among the shareholders, but which had been sacrificed by them, in order to swell the works of the general undertaking, and give effect to the commercial business transacted there. Mr. Unwin had given the most satisfactory evidence, and was prepared to give item for item in proof of all his statements. He admitted, and the company all admitted, that the books were at one time not very carefully kept, but then he added that the vouchers afforded full and correct explanation, and that he had traced all the items; and his evidence given before the House of Commons had been strengthened by that given before their lordships, because he said he found, on looking into the capital account, that, besides the £67,680 which could be proved to have been expended on permanent works and for the general benefit of the undertaking, he found no less than £19,965 charged against the revenue for the ordinary repair and maintenance of the works. That was a link of the evidence which had been wanting in the other House. Mr. Unwin had not then had an opportunity of going through the question. The charge, then, against the company was this:—"Why, you say you have spent £67,000, but you have no renewal fund. Where have you provided for the wear and tear of the undertaking? It may be true enough that you spent £67,000; but every company is bound to provide for wear and tear." The answer was now supplied. "Besides the £67,000," said Mr. Unwin; "I can show £20,000 which is charged to revenue account, and I will tell you more," said he; "that the formal depreciation, which was referred to by Mr. Stevenson, works out very nearly to the same figure as I gave you from the books." Now, this evidence was valuable in two ways—In the first place, it confirmed and strengthened, to demonstration irresistible, the moderation of the estimate for actual expenditure over capital; and, in the next place, it supplied as strong evidence as could be wished that the expenditure of £67,000 had been properly laid out in order to keep up the value of the undertaking. What were the objections advanced in their lordships House to that evidence? They had heard some testimony from Mr. Chadwick respecting some small items of £50 or £1000, and then he mentioned some other small items as occurring in the year 1825; showing, however, in almost every instance, that the expenditure had been made with a view to the extension of the works; and showing, also, the great care which had been taken by the company in setting forth every item. Well, then, here the company were, with an absolute expenditure on their works of £67,000. But then the question was—and it was the true question for consideration by their lordships—Whether or not this should be checked, and whether there were any means of ascertaining, not from the books only, but from other sources, the amount which had, up to the present time, been expended on the works? One mode of settling that was, to deal with the profit of the concern. Now, Mr. Chadwick said that the present value of the shares in the market was £37. 10s., and it appeared

that there were 1950 shares. Now, that represented £73,000. Now, this was not a parliamentary undertaking, it was a private undertaking; forming, therefore, that kind of investment which was least in favour with the public, because the public looked to an undertaking having parliamentary powers as being the best and safest investment. Still, according to Mr. Chadwick, £37. 10s. was the price of the shares in the market at the present time, and the sum they would produce at that price exceeded, by £73,000, the amount which the company proposed to fix by their bill, subject to the approval of their lordships and the House of Commons as the amount of capital for their undertaking. But then it was said that this was not a sufficient check, and that they must take the structural value. But that was no true criterion, because, supposing they could show the actual expenditure on capital, nobody could raise a question about the works because they would be represented by that capital. In all these undertakings, the amount of the capital expended was the main question, and the settlement of that put an end to all other questions. A purchaser would no doubt look, not at the capital, but at the real value of the undertaking, just as persons wishing to purchase shares in it would look to the £37. 10s. as the present value of each. Every person going to purchase, would look at the value of the works commercially, and would thus form his opinion as to the actual value of the thing he was going to buy. If the company were perfectly clear on all points touching the subject of their accounts, then he would submit to their lordships that there would be only one course open, and that would be, to enact the accounts. But, then, the structural value came in upon some ambiguity, or supposed ambiguity, in the accounts. Nevertheless, let him see what was the value of that test. He had already given their lordships a statement of the expenditure, from the accounts. He had also given them the value of the shares in the market; and now he would give them the structural value, which would lead to the commercial value. Well, now, in all undertakings like gas-works, there must be a floating capital. If they built gas-works, they must lay out so much money. They must have gasholders, mains, retorts, and buildings; and, before they made gas, they must have money to buy coals, and to pay the salaries of their officers and the wages of their workmen. Mr. Burgess estimated the floating capital for an undertaking of the kind, and said it varied from £10,000 to £12,000. He (Mr. Hope Scott) would take it at £11,000. Of course, if the returns were rapid, there was no occasion for its being so large; but, he believed it was perfectly true that, in a business like that of manufacturing gas, it was necessary to have a floating capital of from £10,000 to £12,000. Taking, then, the £67,000 spoken of as the total capital expenditure, and deducting the £11,000, from it for floating capital, he found that the balance, £56,000, was the capital expended for structural purposes. There was £20,000 expended, going on concurrently with that, which was called capital expenditure. Having thus brought down the capital expended for structural purposes to £56,000, what was the valuation of the works, as deposed to by six competent witnesses? The valuation of these seven witnesses, of the present state and value of the works—Mr. Unwin being one of them, Mr. Barlow another, Mr. Aird a third, Mr. Emmot a fourth, Mr. Hawksley a fifth, Mr Burgess a sixth, and Mr. Copeland a seventh—produced sums varying from £61,000, the highest, down to £58,000, the lowest, and averaging £59,455, as being their opinion of the present structural value of the works. Well, now, that proved two things. It proved that the distinction between capital and expenditure in the books was correct. It established that beyond a doubt, because he alleged that the capital on expenditure was £56,000, and their average finding made it amount to £59,000. The further inference was, that the £20,000 attributed to wear and tear and renewals ought to have been carried—or that some portion, at least, of that sum ought to have been carried—to capital account, rather than to depreciation. If the works were now worth what these competent witnesses concurred in thinking—namely £59,000—if they were worth that money now, it was clear that the original expenditure must have been made out of ordinary revenue. These seven gentlemen were gentlemen of the very highest experience in matters of this kind. They had gone over the whole of the works, and made their calculations with the utmost caution; and, as their lordships knew, the attempt made on the other side to bring discredit on their valuation had been utterly futile.

The CHAIRMAN asked what the learned counsel had set down the £11,000 to?

Mr. HOPE SCOTT replied, to floating capital. There had been an attempt made to impugn Mr. Barlow's valuation, by bringing forward a contractor for masonry, and there had been another attempt of a similar kind made with regard to the evidence of Mr. Burgess, but it was all to no effect. There remained the sworn evidence of seven experienced gas engineers, or managers, or accountants, who went into the whole matter, and travelled over the whole ground, and their valuation actually exceeded the amount which the company attributed in their books to the structural value. Well, now, what was the contrary evidence? The contrary evidence comprised only one person who had seen the works—Mr. Stevenson, and he had seen them in 1859. Now, how had his evidence borne upon the question? He concurred with Mr. Barlow in 1859, as to the value, and said the works were then worth £40,950 after depreciation. He then must allow, and did include, £6308 for meters, and a subsequent outlay of £6000, so that here their lordships had Mr. Stevenson bringing up the total to £53,758, without making any allowance for floating capital. Taking, then, these figures together, their lordships get £53,758, and, adding £11,000 for floating capital, it gave a total of £64,758. Allowing, then, for depreciation of the meters, and Mr. Stevenson's evidence alone, went to prove the preamble of the bill. Take it in any shape or form upon the evidence of the parties who had seen the whole of the works, and their lordships would find that, at the present moment, the capital stated in the bill was under the mark. Well, then, the depreciation in the year 1859 received illustration in Mr. Unwin's evidence, very favourable indeed to the promoters, for a considerable allowance was made for depreciation, in ignorance of the enormous expenditure going on over the whole period. There was, therefore, no reasonable ground for making these deductions on account of the depreciation, the constant supply of the wear and tear being very large; so that, if their lordships took the evidence of Mr. Stevenson and Mr. Barlow, as to the year 1859, and struck off the depreciation, that would bring the total amount to £57,000 or £58,000, excluding the floating capital. The structural value so put, he (Mr. Hope Scott) agreed to—namely, £53,000 without depreciation, but including the depreciation in the structural value—that would bring up the total capital, as proved by Mr. Stevenson, to £67,000. The truth was, that the attack of the opponentists in the present case had been a most unwarrantable one, an attack for which the promoters were not prepared in the first instance; but, if they had their account in the House of Commons which they had here, there was no doubt in the world that they would have carried their bill for the whole £67,000. But there was further evidence. There was the evidence of the commissioners themselves in 1859, when they were willing to purchase the works for £63,000, without taking the floating capital. The company had spent since then the sum of £6411; and, if that were added to the sum at which the commissioners were willing to purchase the works, it would give a total of £69,411; and, if to that were added the floating capital of £11,000, the grand total would be got up to £80,411. So that there really was no view of the figures backwards or forwards—whether it was the actual expenditure, or the present value of the shares in the market, or the confessions on the part of the opponents of the bill—in which the capital of the company was not only supported, but more than supported. Now, was it not hard that the company should be assaulted as they were; and assaulted by parties who were asking their lordships to insert clauses, not only to compel the company to sell, but to enable the commissioners to buy? They had appeared against the company on a former occasion in a similar manner. They objected to the clauses when the bill was before the Commons; and, when the preamble had been passed, they retired from the room. What were the promoters to do? The parties withdrew; the company did not desire the clauses which the commissioners were forcing on them, and they were struck out. What was the nature of the clauses which the commissioners were now seeking by their petition to have, in an improved and modified form, reinstated in the bill? They were clauses which dealt with the question of privilege, and the definition of rates. With all questions arising out of services rendered, in the ordinary sense of that which was charged for services rendered, their lordships might deal; but, when it came to be a question of rating, that was, of imposing local taxes on the inhabitants, there the privilege still existed. On the conduct of the commissioners, he would not dwell. They had pursued a system of quibbling before the committee of the House of Commons. They then left that tribunal when the preamble had been passed, leaving others behind to do the work for them in all other respects, and leaving their lordships powerless in the matter of giving them the clauses for which they had asked. They had, from a short-sighted policy, thrown away the position the constitution had assigned them for this purpose; and their present petition, if granted, could only have the effect of destroying a bill with regard to which they were seeking the insertion of clauses. This being the case, which was the proper course to pursue? It was this: If the commissioners, who represented 1200 yards from the market-place, wished to have an enlarged jurisdiction, and powers to construct gas-works, let them come before Parliament for their Act. Let them pursue the necessary form to rate the district for that purpose. Let them settle affairs among their constituents at home; and, in their bill, let them make provision for those powers which now they had recklessly thrown away. That would be no punishment to them, for to Parliament they must come for a settlement of the question; and then Parliament could give them the powers they required, if they made out a proper case. At this moment, their claim was one of obstruction. Upon all other points, the discussions before the committee of the House of Commons had exhausted the subject. He confidently submitted to their lordships that the case of the promoters was more than proved; that the opposition was factious; that it proceeded from parties who desired to reduce value in order to buy cheap; that they had rendered their object fruitless; and that they had none but themselves to blame for having thrown away their chance when they retired from the tribunal of the House of Commons.

The room was then cleared for the committee to deliberate. On the readmissionof the public,

The CHAIRMAN said: We think the principle of the preamble is proved; and we mean to fix the capital, as it stands at present, at £60,000, with the same limitation as to dividends.

The clauses were then proceeded with. Some discussion ensued upon the 54th clause, as to the point at which the gas should be tested.

Mr. GRUBBE (parliamentary agent for the bill) said it ought to be at the works, inasmuch as the quality of the gas when tested was required by the bill to be very high. In the House of Commons, the illuminating power was raised from 12 to 14 candles.

Mr. CLOUGH (solicitor for the opposition) said the quality of the gas should be 14 candles at the point of consumption, on the ground of the evidence given by Mr. Hawksley in the Elland gas case.

The CHAIRMAN: The Metropolis Gas Act of 1860 fixes the illuminating power at 12 candles.

Mr. SUDLOW (parliamentary agent for the opposition) said that, during the present session, Parliament was raising the illuminating power generally.

The CHAIRMAN: Practically, you will get the gas of 14 candles all over the district, as the company must make it above that illuminating power to secure themselves from the penalty in the bill. I think you must have the usual mode of testing at the works.

Mr. SUDLOW said he was told that, at Dewsbury, the testing-place was a mile and a half from the works.

The CHAIRMAN: I think the testing should be on the main coming from the gasholder.

Mr. HAWKSLEY proposed that the clause should read thus—"The company shall, within four months from the passing of this Act, cause to be erected in some convenient part of their works so situated as to test the illuminating power of all the gas supplied by the company through the outlet main leading from their gasholders for the supply of the consumers of gas, an experimental meter," &c.

The clause, as amended, was agreed to.

Mr. CLOUGH proposed to insert a new clause. He said, by the act 22 and 23 Vict., entitled, "An Act for regulating Measures used in Sales of Gas," it was enacted that corporations might adopt the Act; but the Legislature had overlooked the fact that many places in the country were under local improvement Acts, and not under corporations. The commissioners of Huddersfield were of opinion that the provisions of the Sale of Gas Act were very proper and necessary, and they desired to have a clause inserted in this bill, giving them the same power to adopt it that the general Act gave to corporations; in fact, that they should be placed in the same position in reference to it as a town council. He, therefore, proposed "That the Huddersfield improvement commissioners shall be considered in the same position as a town council who have adopted the 'Sales of Gas Act,' and shall, and may from time to time appoint an inspector of meters, and such inspector shall, upon the application of any consumer of gas, have the right to inspect the meters of the company upon the premises of such consumer, and such inspector shall have all the powers and authorities of any inspector appointed by any town council in England." The same kind of omission as he had referred to had crept into the General Police Act, which did not recognize commissioners; but, when the matter was brought before the attention of Parliament, the commissioners were placed on precisely the same footing as municipal corporations, and it was to extend the same advantages here that this clause was proposed.

Mr. GRUBBE objected to the clause inasmuch as it was an endeavour to

amend a general Act by a clause in a private Act. The Sale of Gas Act provided for the regulation of gas-meters by the appointment of inspectors in all counties, in the first instance by the justices in quarter sessions. But then exception was taken in the case of boroughs, inasmuch as the county rate did not go into them—that the municipal corporations should have similar powers of appointment. It was never intended to extend the powers of the Act to improvement commissioners.

The committee, having consulted for a few minutes, sent a message to Lord Redesdale; and his lordship shortly afterwards entered the room.

Lord REDESDALE, after reading the clause said: This would be an alteration of the provisions of a public Act.

Mr. SUDLOW: We do not alter it, but want to extend it to the improvement commissioners.

Lord REDESDALE: But the Act does not give the power to improvement commissioners.

Mr. SUDLOW: We wish to extend it.

Lord REDESDALE: Is not that an alteration? Would you not think it an alteration of a punishment if it were extended from six to twelve months?

Mr. CLOUGH: Your lordship is probably aware that it is a permissive Act. The improvement commissioners who have been recognized by the Legislature in reference to the Police Act, ask that they shall be in the same position in reference to the Sales of Gas Act.

Lord REDESDALE: But the public Act does not say that they may have it. It gives a discretion to one body, but not to the other.

Mr. CLOUGH: That is the reason we ask it.

Lord REDESDALE: Then, you must get the public Act amended, if it is proper these parties should have the authority to act in the same way as corporations—not for Huddersfield only, but all other places within certain limits, if Parliament thinks fit.

Mr. CLOUGH: I should be glad, indeed, if your lordship would get the Act amended in that manner.

Lord REDESDALE: You had better ask the member for Huddersfield.

The CHAIRMAN: We cannot admit this clause.

Mr. CLOUGH: We stand in the same position as county justices.

The CHAIRMAN: The general Act gives power to justices to appoint inspectors, and that is sufficient.

Mr. CLOUGH said he had one other clause to propose. By the 62nd clause of this bill, the rights of the Huddersfield Water-Works commissioners were saved; and he proposed that it should read thus: "Nothing in this Act contained shall be held or construed to take away, alter, prejudice, or affect any of the rights, privileges, powers, or authorities of the Huddersfield Improvement Commissioners, under, or by virtue of, the Huddersfield Improvement Act of 1848, or the several Acts of Parliament incorporated therewith; or of the Huddersfield Water-Works Commissioners."

The CHAIRMAN: What is your object? What powers does this bill take away?

Mr. CLOUGH said that would be a difficult question to answer, but the company, having inserted the clause in reference to the water-works commissioners, it was felt desirable to extend it to the improvement commissioners.

Mr. SUDLOW: All we ask is, that we shall not be prejudiced by anything in this Act.

Mr. CLOUGH: We have the power under our Act to lay down pipes to supply gas to the public lamps and also to private consumers.

Mr. GRUBBE: And we do not seek to interfere with those powers; but, there are clauses in the Gas Works Clauses Act, incorporated in this bill, which may be imperilled if this alteration is made.

The CHAIRMAN: I do not see anything in this bill that takes away the powers of the commissioners.

Mr. CLOUGH: If the promoters do not think it will affect us, why do they object to this alteration?

The CHAIRMAN: They do not know whether there is not something under that which may interfere with their bill.

Mr. SUDLOW: The provisions of the Gas Clauses Act cannot be affected by saving our rights, as the company have positive authority under that Act.

The clause was rejected. The remaining clauses in the bill were then agreed to, the only alteration made being with reference to the price of gas supplied to public lights, which was fixed at a maximum of 2s. 6d. per 1000 cubic feet.

Legal Intelligence.

COURT OF COMMON PLEAS.

MONDAY, MAY 27.

(*Sittings in Banco, in Trinity term, before Lord Chief Justice* ERLE, *and Justices* WILLIAMS, WILLES, *and* BYLES.)

PURNELL *v.* THE WOLVERHAMPTON WATER-WORKS COMPANY.

This was an appeal from the decision of magistrates of Wolverhampton.

The appellant is the surveyor to the corporation of Wolverhampton. A fire occurring in that town, which did much damage in the course of the night, and, by reason of the pipes of the water-works company not being kept at high pressure, the fire could not be extinguished with the facility that it otherwise might have been, the appellant summoned the defendants company before the stipendiary magistrate for a penalty to which he contended the respondents were liable under their private Acts, coupled with the Water-Works Clauses Consolidation Act, which was incorporated with them. The magistrate decided that, under their private Act, the company were not liable to keep their mains at high pressure, and dismissed the case.

Mr. TOMLINSON appeared for the appellant; and Mr. T. T. POWELL for the respondents.

The COURT were of opinion thut the decision of the magistrate was right, and that a special exemption from keeping the mains at high pressure, contained in one of the private Acts of the company, was not repealed or overridden by the general statute.

Appeal dismissed.

GREENWICH POLICE COURT.

WEDNESDAY, MAY 29.

(*Before* Mr. MAUDE.)

IMPORTANT DECISION UNDER THE METROPOLITAN BUILDINGS ACT.

Mr. *Groves*, the proprietor of extensive corn and granary stores, known as Platform Wharf, Rotherhithe, appeared to an adjourned summons, at the instance of Mr. Hesketh, assistant district surveyor, for non-compliance with the provisions of the Metropolitan Building Act.

Mr. HONYMAN, barrister, instructed by Messrs. Kearsey, Hughes, and Co., attended for the defendant.

Mr. HESKETH said, the question to be determined was, whether the additions made to the old building, which were very extensive, necessitated the construction of party-walls throughout? The old building had been raised 15 feet, and the additions thereto comprised 430,000 cubic feet, the Act requiring party-walls to be constructed in buildings containing 216,000 cubic feet.

Mr. HONYMAN said he appeared on behalf of the defendant, and produced a model of the premises in question. The learned gentleman then observed that the building was a large warehouse for storing corn and grain, and for which it was requisite a general open space should exist for the purpose of ventilation; but, if party-walls had to be erected, then the building, for the purposes named, would be entirely destroyed. In addition to this, it would be an exceedingly hard case upon the defendant, the building having taken place under the supervision of Mr. Snook, also a district surveyor, and who had acted according to judgments given by Mr. Burcham and Mr. Arnold, the judgment of the former having reference to the warehouses of Mr. Alderman Humphery, in 1858, and the latter in reference to the Stag Brewery, at Pimlico, in 1859. These decisions, under the 3rd and 4th rules, section 27, of the Act, were decisions exactly in point with the case then before his worship, the Act exempting a building from party-walls being necessary when in one occupation, and having separate entrances externally to the different floors or stories. The building of the defendant was divided into separate floors, and these floors had no internal communication with each other, and all were in one occupation. A covered passage outside the external wall of the old building adjoined, and ran parallel with it, at the end of which was a spiral staircase, a door being at each landing, and leading to the several floors, no means existing of getting from one floor to the other internally, which could not be gained except by returning to the outside and ascending the staircase again, or descending, as the case might be.

After a lengthened argument *pro* and *con*,

Mr. MAUDE, in giving his decision, said: This is an information under rule 4 of section 27 of the Act, for making an addition to a warehouse, containing more than 216,000 cubic feet, with making the requisite party-walls. All the facts, at the first hearing, were agreed upon. It was admitted that the addition, if taken altogether, did contain more than this number; but it was contended, on the part of the defendant, that, under the particular construction of the building, the computation should be made, not from the entire addition, but from each compartment or story, no one of which separately contained this cubical content. The argument on the part of the defendant was founded on this—that the term "building," in the 4th rule, must receive its signification from the definition given in the 3rd rule; that this warehouse, being a building divided into two or more tenements, each having a separate entrance and staircase, or, at least, a separate entrance from without, each tenement—that is, each separate compartment on the different stories—must be deemed to be a separate building; and, as each one is of less than the allowable cubical content, that the Act has been complied with, and that no farther division by walls is requisite. Assuming for a moment that rule 3 is to govern rule 4 in the case of a warehouse, and that the term "building" is to be limited by this definition, I still entertain considerable doubt whether the particular construction of the building in question brings it within the qualification sought to be put upon it. The condition is, that each tenement shall have a separate entrance and staircase, or a separate entrance from without—that is, shall not have a common entrance and staircase, or a common entrance from without. Now, from the description given of this building, and from the model shown to me, I cannot but think that the different stories of this building have a common entrance and staircase, and a common entrance from without; that the winding staircase connects all the stories together, and can be shut in by one door at the common entrance from without. But, leaving this question, the conclusion at which I arrive, after a careful consideration of the wording and objects of the Act, is a far more important one in point of principle. It is this, that rule 4 stands independently of the restrictions in rule 3. It seems to me that the Legislature having laid down certain rules as applicable to buildings in general, evidently referring for the most part to dwellinghouses, proceeds next to dealing with a new class of buildings, which they take out of the category, and for which they legislate specifically, and for which they introduce a new principle or condition. The reason is obvious enough. These being buildings specially intended for the deposit of heavy goods, and, therefore, subject to great pressure, vertical and lateral, the size of the various compartments within the supporting walls, becomes a very material element in determining the stability of the building, and accordingly limits are assigned to this. I cannot but think that this rule stands by itself, and that the term warehouse or other building used for purposes of trade must be taken to comprehend the whole building, however the different compartments or parts of it may be arranged. A singular absurdity will arise by limiting another word in this rule by the definition previously given. The rule requires that, when the warehouse exceeds the specified cubical contents, it shall be divided by party-walls. Now, on turning to the definition of party-walls, in section 3, I find that party-wall (page 2) is with a view to the same being occupied by different persons. Is it to be said that when the building is not to be occupied by different persons, there can be no party-wall? If so, then a warehouse in one occupation cannot be divided as prescribed by the Act, and the rule becomes inoperative at once. However, this is no further material to the present question, than to show that the Act does not possess that strict precision of definition and language which prevents ingenious and forcible arguments, such as those urged on behalf of the defendant in the present case. My mind has been greatly pressed by the authority of the decision of one of my colleagues (Mr. Burcham), referred to on the part of the defendant; but, notwithstanding this, and the diffidence I have in my opinion in opposition to his, it appears to me that the consequences which necessarily follow from the construction put upon the clause by the defendant, would be so manifestly against the intention and object of the Act, that I cannot bring my mind to any other conclusion than that I have stated.

A consultation then took place in reference to the time within which the alterations required in the building should be completed, twelve months being asked on the part of the defendant, in consequence of the warehouses being at present filled with grain.

It was ultimately agreed to limit the period to nine months—the order to be made accordingly.

THE ARTESIAN WELL AT PASSY.—After several years of labour, during which the progress of the works was repeatedly interrupted by accidents to the boring tools, the water has been tapped, at a depth of 577 mètres or about 1875 feet English; but it is doubtful whether any considerable quantity of water will be obtained, as it does not rise to the surface, and the level has been constantly falling since the spring was tapped.

Miscellaneous News.

ORIENTAL GAS COMPANY.

The Ordinary Annual Meeting of the Shareholders of this Company was held at the London Tavern, on Monday the 20th ultimo—Mr. FAWCETT in the absence of Captain Barber, the Chairman, presiding.

Mr. HERSEE the Secretary read the advertisement convening the meeting, and the following report and statement of acounts were then taken as read.

Your directors, in laying before you the accounts for the past year, have again to congratulate you on the steady and successful progress of the company.

The following table shows the rate of increase in the number of public and private lights for the year:—

	Public Lights.	Private Lights.
1859—December	606	1504
1860—January	606	1512
February	637	1545
March	686	1572
April	712	1847
May	755	1855
June	795	1897
July	795	1967
August	795	2022
September	795	2107
October	795	2164
November	826	2303
December	848	2365

Upwards of eight miles of mains have been laid during the past year in other streets than those referred to in the last report, viz.:—Baranosey Ghoses Street,—Chowringhee Lane,—College Square,—Clive Street,—Cocked Hat,—Circular Road,—Cornwallis Street,—Cornwallis Square,—Commercial Buildings,—Elliott's Road,—Elysium Row,—Hemayon Place,—Joratollah Street,—Lindsay Street,—Mangoe Lane,—Maxton'sLane,—Maidan,—Royd Street,—Sudder Street,—Strand. The consumption of gas in the new districts has fully answered the expectations of your directors.

The latest accounts from Calcutta are of the most encouraging nature: orders for laying on gas come in more rapidly than our men can execute them; but your directors are making arrangements to meet any amount of increased demand, and they have every reason to believe that the result of the current year's working will prove most gratifying to the shareholders.

Your directors have to announce, with sincere regret, the death of their late valuable and esteemed colleague, John Gill, Esq. In making this announcement, they recommend that the vacancy thus caused in the direction shall not be filled up.

The board have again the pleasure to record the untiring energy and zeal displayed on all occasions by Wm. Anderson, Esq., in the management of this company's affairs in Calcutta.

The general revenue account shows a balance of £4259. 10s. 8d., out of which the directors recommend a dividend at the rate of 4½ per cent. for the year, free of income-tax, payable on the 12th day of June next.

The retiring directors on this occasion are—George Denny and Charles Farquharson, Esqrs.; and the retiring auditors are—James Sydney Stopford and Henry McLauchlan Backler, Esqrs., who, being eligible for re-election, offer themselves accordingly.

Dr. — *Balance-Sheet, December* 31, 1860. — *Cr.*

To 50,000 shares, of £1 each		£50,000	0 0		
49,990 ditto, ditto (15s. paid)		37,492	10 0		
10 ditto, ditto (2s. paid)		1	0 0		
				£87,493	10 0
Unclaimed dividends				26	14 7
Wear and tear account—					
Balance, 1859	£ 206 7 6				
1860	353 8 0				
	£ 559 15 6				
Less—Repairs paid for the year	280 11 11				
				279	3 7
Amount due by the company				6,708	18 3
Balance from General Revenue Account				4,259	10 8
				£98,767	17 1

By Amount of plant on the 31st of December, 1859		£75,787	12 9		
Expended during the year 1860		2,589	3 7		
				£78,376	16 4
Cost of plant to the 31st of December, 1860				£78,376	16 4
Fittings account				4,400	7 10
Amounts due to the company				2,355	18 4
Value of stocks, viz.:—					
Coals	£1,421 15 0				
Lime and purifying material	11 4 0				
Products	294 18 4				
Meters	491 10 0				
Pipes	1,315 4 2				
Sundry stores	1,803 17 7				
				5,338	9 1
Balance in Calcutta	£1,081 1 11				
Ditto in London	782 13 7				
Bills receivable	2,000 0 0				
India loan debentures, 1858	4,432 10 0				
				8,296	5 6
				£98,767	17 1

Dr. — *Profit and Loss, or Working Account, for* 1860. — *Cr.*

To Cost of coal used		£4,744	11 5		
Ditto of lime used		365	18 4		
Salaries in India and London		734	13 3		
Engineers salaries in India		695	19 4		
Directors and auditors		850	6 8		
Wages in India		988	9 5		
General expenses, including rent, gharry-hire, postages, advertising, printing and stationery, medical attendance, travelling expenses, and petty charges		808	7 1		
Wear and tear account		353	8 0		
Bad debts and allowances		48	17 2		
				£9,590	10 8
Balance				4,025	0 0
				£13,615	10 8

By Gas rental		£10,489	6 1		
Coke, tar, fittings, and meters		3,114	17 1		
				13,604	3 2
Transfer fees				11	7 6
				£13,615	10 8

Dr. — *General Revenue Account, December* 31, 1860. — *Cr.*

To Dividend of £3 per cent., to the 31st of December, 1859, declared at the general meeting, May, 1860		£2,625	0 0		
Income-tax		98	8 9		
				£2,723	8 9
Balance				4,259	10 8
				£6,982	19 5

By Balance of General Revenue Account, 1859				£2,920	5 7
Ditto of Profit and Loss ditto, 1860		£4,025	0 0		
Interest		37	13 10		
				4,062	13 10
				£6,982	19 5

May, 1861.

(Signed) JAMES BARBER, *Chairman.*

Examined with books and vouchers, and found correct—May 2, 1861.

(Signed) J. S. STOPFORD, H. MC L. BACKLER, *Auditors.*

The CHAIRMAN: Gentlemen, it is now my duty to move "That the report of the directors, and the statement of accounts be received, adopted, and entered on the minutes." In proposing that resolution, I have to express the regret of the board at the painful circumstance which places me in this position to-day. Our esteemed chairman, Captain Barber, has been very seriously ill; and, though we have reason to believe he his now recovering, his health is not sufficiently re-established to enable him to undertake the duty of presiding over this meeting. I am, therefore, placed in the chair very much against my inclination, at the request of my colleagues, either one of whom I feel would better have filled the office than I can hope to do. As far as the company is concerned, it is a very pleasing thing for the directors to meet you here to-day, and to add their verbal congratulations on the successful progress of our operations, as set forth in the report. We appear now to have arrived at what I may call a starting point. Hitherto, we have been beset with many difficulties, and have been enabled to afford you so poor a return for your outlay that we have never before met you with so good a heart as we do on this occasion. Our rental is improving, and our prospects are much brighter than they have ever been, so that I trust we shall soon reap the reward of our patience, and—allow me also to say—our energy and perseverance. We have had many local obstacles to fight against. You are aware of the sickness and mortality there have been with our engineers, whereby we have lost a great deal of valuable time. We have had difficulties with the Government, particularly from the tardiness they have displayed. But, I think now, all these hindrances are being removed, and these difficulties are lessening. We have also had the dangers arising from shipwreck to contend with, by which we have lost further valuable time. Then, again, we have had uncomfortable reports from India; such as, that gas is not suitable to Calcutta, that it was too hot for the Europeans, and that the natives did not like it. We have been told that our countrymen over there could not enjoy the luxury of the punkah, which, from time immemorial, they have been accustomed to, if gas was used in the room. And, besides all this, we have had a competitor in the field, who has threatened to overwhelm us—that competitor being cocoa-nut oil. Well, we have managed to get over, I think I may say, every one of these difficulties. We find, notwithstanding those evil predictions to the contrary, Europeans have discovered that the gas is not to hot for them, that, in fact, it does not produce so much heat as the consumption of the same quantity of cocoa-nut oil produces, while it yields them three times the amount of light; and that, by the way in which chandeliers are fixed in the rooms at Calcutta, they can still enjoy the luxury of the punkah, without the least flickering of the lights. As to the native prejudices, I can answer for their being removed by the somewhat extraordinary fact that one-third of our private consumers are natives of that place. With regard to cocoa-nut oil, when I tell you that one of our largest consumers who intended to burn it coincidently with gas, has been gradually reducing the number of the former lights, and increasing the latter, till now, I believe, he has not a single cocoa-nut oil lamp in his place, and that even in the bed-rooms of his establishment he has a jet of gas, you will see that we are in a fair way of putting our competitor fairly out of countenance. Many other difficulties we have had to struggle with; and, strange as it may seem in a matter of this kind, it is a fact that nothing has so much interfered with our operations as the late Indian mutiny. It was, of course, a matter which we could not foresee—probably, if we had, we should not have been in existence as a company at all. But our lighting had just begun when the mutiny broke out, and the excitement which it produced caused attention to be directed away from our operations, and we had to wait our time. The mutiny over, we had the difficulty arising out of Indian finance, which, as the people over there had to be initiated into the mystery of loans, caused attention again to be diverted from us. But, during the last few months, our prospects have brightened, and the demands made upon us are of the most cheering kind. I hope, therefore, that, in a year or two, not only will our income meet our expenditure, but, to use an American phrase, will "lap over" a little, and that we shall be able to reap some of the advantages to which we have long been looking forward. In reference to one paragraph in the report, I should just like to say a word. We have had one year's experience connected with gas-fitting, and have found that it answers very

well. The supply of fittings had become, from the necessary expenses incurred with them under Messrs. Messenger's contract, a very serious matter, for they had to send over a large establishment of engineers and workmen, and could not be expected to carry on those operations without a considerable profit. I have known an instance where the fitting up of one of our customers establishments cost £2000; and it was a very common thing to cost £200 or £300. It was necessary to meet this difficulty, and, Messrs. Messenger's contract having expired, we took the matter into our own hands. We are now enabled to supply intending consumers with fittings, at prices which are not prohibitory; and I have no doubt that, in the result, we shall find it highly satisfactory. The increase in private lighting has been great. During the year 1860, it was 57 per cent. upon the whole number of lights in 1859, and 245 per cent. upon the increase in that year. That is a very favourable state of things; but, we can give you even better results for 1860; for during the first three months of the present year, we have increased the number of private lights by 542, which is 23 per cent. upon the whole number up to December 1860; and, if we should go on at the same rate to the close of the year, there will be an increase of 92 per cent. It has been a matter of regret to the directors that the progress of the company has not been sufficiently rapid, during the last three years, to require them to call upon you for any increase of capital. The last call we made was in March 1858, but I have now the pleasure to inform you that, in consequence of the difficulties to which I have referred having been removed, we shall have to send out a large quantity of mains and materials, and the directors have it in contemplation to call up the remainder of the capital, due upon the new shares, about the beginning of July next. We have to lament the loss during the past year of one of our directors, who rendered us good suit and service. Under present circumstances, we do not intend to recommend the filling up of the vacancy at the board. In conclusion, I would acknowledge our obligations to our manager, Mr. Anderson, who I am sure you will be glad to hear retains the fullest confidence of the directors, and whose services I know you will have pleasure in recognizing.

Mr. BROWN seconded the motion.

Dr. BEATTIE made some observations upon various points contained in the report, and expressed an opinion that the working expenses of the company were somewhat large.

The CHAIRMAN, in answer to Colonel Anderson, said they had about £12,500 in hand available for future extensions.

Colonel ANDERSON made several suggestions or recommendations to the meeting. Amongst others, that there should be a gradual reduction of the number of the directors, and that their remuneration above £100 or some fixed sum should be dependent upon the dividend paid to the shareholders; that the twenty-one days notice required for the appointment of a director be abolished; that the shares of the company should be consolidated; that the London expenditure should be kept entirely distinct from the Calcutta, and that the meetings of the company should be held earlier in the year.

Mr. ROBARTS made some inquiries respecting the form of the accounts, and asked for more information on them.

Mr. BROWN replied to some of Colonel Anderson's remarks, and explained that the duties of the directors were not so light as he seemed to suppose.

Mr. DUKE expressed his satisfaction with the position of the company.

The motion was then put and carried, the retiring directors and auditors were re-elected, and a dividend at the rate of 4½ per cent., free of income-tax, was declared.

Mr. BEACH said he had been in correspondence with many shareholders in Liverpool, and the general opinion amongst them was, that the remuneration of the directors—£800—was too high. He was requested by them to propose that that remuneration should be so far reduced as to admit of the payment of a 5 per cent. dividend to the proprietors.

After some conversation upon the subject,

The CHAIRMAN said there was no objection, on his side of the table, to the sense of the meeting being taken on the subject; but any resolution of the kind would have reference only to the future. He must say, however, on the part of the directors, that they were a little hurt at the way in which the matter had been discussed, remembering that, on the last occasion, considering the position of the company, they gave up half their remuneration, and no observation was made upon it. After referring, at some length, to the duties which the board had to discharge, he concluded by observing that the remarks which had been made were very unsatisfactory to him, and he considered the remuneration given to the directors a mere bagatelle.

Colonel ANDERSON and Mr. WHITE having offered some observations, the proposal made by Mr. Beach was withdrawn, and a vote of thanks having been offered to the directors, the proceedings terminated.

THE METROPOLITAN GAS SUPPLY.

WESTMINSTER DISTRICT BOARD OF WORKS.

A Special Meeting of the Board was summoned pursuant to a requisition signed by five members, to meet on Friday last, the 31st ult., at the Offices, Great Smith Street, to "receive and consider a report of the solicitor, as to the costs, charges, and expenses of, and incident to, the passing of the 'Metropolis Gas Act, 1860,' and to determine upon the course to be taken in relation thereto, so as to insure the repayment of the several advances made by certain vestries and district boards to the delegates, on account of such expenses; and to come to such resolutions, and make such orders thereon, as circumstances may require, or may be deemed expedient."

Mr. T. HORN occupied the chair; and the clerk (Mr. Jebb,) having read the requisition, and notice of meeting,

Mr. ROGERS (the solicitor) presented the following report:—

BOARD OF WORKS FOR THE WESTMINSTER DISTRICT.

Solicitor's report as to the taxation of the costs, charges, and expenses of, and incident to, the passing of the Metropolis Gas Act, 1860, and preliminary thereto.

That two bills of costs were submitted to the taxing officer—one by Messrs. Dangerfield and Fraser, amounting to £83. 19s. 5d., and the other by Mr. Wyatt, the parliamentary agent, amounting to £3666. 0s. 4d.; and the account of disbursements claimed by Mr. Beal, the honorary secretary to the delegates, amounting to £2685. 13s. 6d.; making a total of costs, charges, and expenses claimed in relation to the passing of the Act, of £6435. 13s. 3d.

That seven meetings were attended before the taxing officer of the House, and the before-mentioned bills were ultimately taxed and settled at the following sums; that is to say, Mr. Dangerfield's bill at £62. 6s., being a reduction of £21. 13s. 5d.; Mr. Wyatt's at £3033. 18s. 10, being a reduction of £632. 1s. 6d.; and the claim for disbursements by the delegates, £676. 11s. 10d., Mr. Beal withdrawing from the account £2009. 1s. 8d.; thus making a total reduction in the accounts, as originally delivered, of £2662. 16s. 7d.

In the ordinary course of practice in other courts, more than one-sixth part having been taxed off these bills, the claimants would have been charged with all the costs of taxing such bills; but, in this particular case, the point having been submitted to the taxing-master on behalf of the Metropolitan Board, he, in his discretion, decided that each party should bear their own expenses, the Metropolitan Board paying £45. 11s. 8d., the fees in respect of the taxation.

Upon reference to Mr. Beal's account, it appears that a sum of £1413 has been advanced to Mr. Wyatt, on account of his bill of costs of £3666. 0s. 4d., out of the fund formed by the voluntary contributions of certain vestries and district boards, and for which the receipts of Mr. Wyatt were produced; that is to say—

			£	s.
2nd April, 1860.	By Mr. Beal, on account of Metropolis Gas Bill 1860		100	0
10th May, ,,	The like—same account		281	10
10th May, ,,	The like—Marylebone—on same account		31	10
24th May, ,,	The like—same account		200	0
14th June, ,,	The like—same account		350	0
30th June, ,,	The like—same account		250	0
28th July, ,,	The like—same account		200	0
			£1413	0

By these payments, the receipts for which are in charge of the solicitor of the Metropolitan Board, the balance now due to Mr. Wyatt is reduced to the sum of £1620. 18s. 10d., the amount taxed off his account being an overcharge to which no party is liable.

The account presented by Mr. Beal, amounting to £2685. 13s. 3d., is chiefly composed of the following items of expenditure—viz.:

	£
Law charges, not included in Mr. Wyatt's taxed bill.	192
Advanced to Mr. Wyatt	1413
Advertisements	114
Phipps—printing for delegates.	216
Waterlow—stationery	45
Hopkins—plans	111
Mr. Samuel Hughes—petty cash	264
Mr. Beal—petty cash	42

The accounts having been taken, and the amount of expenditure ascertained, it appears that the amount to be raised by the Metropolitan Board is £3818. 8s. 1d., out of which the following payments are to be made:—

Fees to be paid by Metropolitan Board		£45	11 8
Mr. Dangerfield		62	6 0
Mr. Wyatt	£3033 18 10		
Less advances	1413 0 0		
	1620	18	10
	1728	16	6
To be distributed rateably amongst the vestries and district boards, in proportion to their respective advances to the delegates	2089	11	7
	£3818	8	1

That the schedule hereto annexed contains particulars of the several sums of money, advanced by the said vestries and district boards respectively to the delegates, towards the expenses of obtaining the Act, amounting to a gross sum of £2325.

I have, therefore, respectfully to submit that the said sum of £2089. 11s. 7d., being the balance of the costs, charges, and expenses to be received and paid by the Metropolitan Board of Works, after giving credit for the moneys expended by the delegates, in respect to such cost, charges, and expenses, should be secured and applied towards making good to the said several vestries and district boards the amount so contributed by them towards the extra costs and expenses in proportion to their respective advances; and that, in order to attain such object, the necessary communications should be forthwith made to the Metropolitan Board.

Dated this 26th day of May, 1861.

(Signed) JAMES ROGERS, Solicitor to the Board.

METROPOLIS GAS ACT, 1860.

Schedule, showing the amount subscribed by each parish or district, towards the expense incurred in obtaining the Act; also the amount subscribed towards the expenses of the gas inquiry:—

Parish or District.	Amount Subscribed.
St. Marylebone	£31 10 0
St. Pancras	141 10 0
Lambeth	210 0 0
St. George, Hanover Square	335 0 0
Islington	10 0 0
Shoreditch	50 0 0
Paddington	10 0 0
St. Mary, Newington	85 0 0
Camberwell	25 0 0
St. James, Westminster	210 0 0
Clerkenwell	10 0 0
Chelsea	180 0 0
Kensington	100 0 0
St. George-the-Martyr, Southwark	10 0 0
St. Martin-in-the-Fields	200 0 0
Mile End Old Town	10 0 0
Woolwich	10 10 0
Westminster	200 0 0
Greenwich	20 0 0
Wandsworth	100 0 0
St. Giles	110 0 0
Holborn	40 0 0
Strand	100 0 0
Fulham	10 0 0
Lewisham	40 0 0
St. Olave, Southwark	76 10 0
	£2325 0 0

Mr. ROGERS, in answer to Mr. Shedlock, said the schedule had been prepared by Mr. Jebb, at his request, from the delegates own returns. It showed that the advances made by the parishes amounted to £2325; and there was a sum of £38 from private subscriptions, which was not included.

Mr. SHEDLOCK said there appeared to be a loss of about £240, so that the sum which the Metropolitan Board would have in hand would only be sufficient to return the parishes 18s. for every pound they had advanced.

Mr. HUGHES: Does the report recommend that the Metropolitan Board should repay that money?

Mr. ROGERS: I have drafted a resolution, founded upon my report, for the consideration of the board. It is as follows:—"That the report of the solicitor, relating to the taxation of the costs, charges, and expenses incurred in passing the Metropolis Gas Act, 1860, be approved; and that a copy thereof be forthwith forwarded to the Metropolitan Board of Works, with a recommendation that, after retaining the sum of £45. 11s. 8d., the fees to be repaid by the Metropolitan Board of Works, and payment of £62. 6s., the amount due to Mr. Dangerfield, and the sum of £1620. 18s. 10d., the balance of £3033. 18s. 10d. due to Mr. Wyatt after deducting the £1413 advanced to him by the delegates, the balance of the £3818. 8s. 1d. to be raised by the board, amounting to £2089. 11s. 7d. be secured by the said board, and by them distributed and paid rateably amongst and to the several vestries and district boards in proportion to their respective advances to the delegates on account of the said costs, charges, and expenses as set forth in the schedule to the same report."

Mr. PAINTER moved the said resolution, which was seconded by Mr. ELY.

Mr. HUGHES said he had an objection to take to it. The resolution would be an extremely good one for the board to adopt, if they could have it acceded to; but, he considered it would be very unjust to those parishes which had contributed nothing. The Metropolitan Board ascertained the whole of the expenses to be £5053, but it had been subsequently cut down to £3818, which was the amount they would have to levy on the whole metropolis, and, therefore they had to return a portion of the saving to the parishes which had not contributed, as well as to those which had. It was perfectly clear to him that they were entitled to their share of it, and that there must be a rateable reduction over the whole metropolis. Then would come the question as to the parishes which had contributed getting their share of what was left, but not till then. He strongly protested, in the name of common sense, against such a proposition going from this board, feeling sure that if it did, they would make themselves a laughing-stock.

Mr. SHEDLOCK was quite content to be made a laughing-stock of under such circumstances. All that the report recommended, and the resolution urged was, that the Metropolitan Board having received, or having to receive £3818, and only requiring £1728 after the payments which had been made out of the contributions raised by some parishes, should take care that the balance, amounting to £2089 did not get into the hands of parties who would make an improper use of it, but should be reserved to be divided amongst those parishes which had contributed their money to the extent of £2325. He for one was contented that they should receive their fair dividend with other parishes, which he estimated would be about 18s. in the pound on the £210 contributed by this district board. It was only mystifying the matter for Mr. Hughes to talk about the Metropolitan Board having issued their precept for £5053. They had nothing to do with that matter, and he had no doubt that, when Mr. Roger's report was laid before the Metropolitan Board, wiser counsels would prevail. If the latter board had made a mistake, he thought they ought to look to Mr. Hughes as their representative to assist in correcting it.

The CHAIRMAN said he had the precept of the Metropolitan Board before him, and there was no mention in it of any estimate for the expenses of the gas inquiry.

Mr. DEAKIN supported the resolution. He had always voted in favour of the propositions for contributions by this board, because he felt that good would result from the inquiry, but he certainly thought the contributing parishes alone should share in the balance in hand.

The motion, after some desultory conversation, was put and carried by a considerable majority.

Mr. SHEDLOCK moved—"That a copy of this report and resolution be forwarded to the finance committee of the Metropolitan Board, with a request that they will take the matter into consideration, and support the views therein expressed before the Metropolitan Board.

Mr. PAINTER seconded the motion.

Mr. SCUDAMORE doubted the propriety of sending these documents to the finance committee.

Mr. ROGERS said the finance committee would meet on Monday to consider the subject, whereas, the board would not meet until after all the mischief was done.

The motion was put and agreed to.

Mr. DEAKIN moved, and Mr. ELY seconded—"That the representative of this board be requested to support the resolution of the board; and that a copy of such resolution be forwarded to Mr. Hughes for the purpose."

The motion was agreed to, and the board adjourned.

DR. J. NORTHCOTE VINEN'S FORTNIGHTLY REPORT ON THE GAS SUPPLIED BY THE SURREY CONSUMERS COMPANY.—

Week ending. 1861.	Number of Observations.	Maximum Light. Candles.	Minimum Light. Candles.	Average Light. Candles.
May 25	4	15·12	12·84	13·84
June 1	4	15·08	14·03	14·59

The volume of hydrocarbons was equal to 4 per cent.; carbonic acid, 1 per cent. Sulphuretted hydrogen, none. Ammonia was present on May 22, 23, 27, and on June 1. The maximum pressure was 2 inches 2/10ths; the minimum, 2/10ths. The ordinary working pressure averaged 7/10ths of an inch.

Advertisements.

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CHAIRMAN.—EDWARD HAWKINS, Jun., Esq., Chairman of the London Gas Company.
Robinson Duckworth, Esq., Director of the Union Bank, Liverpool.
Francis Edwards, Esq., Deputy-Chairman of the Western Gas Light Company.
Robert Laing, Esq., Independent Gas Company.
William Nicol, Esq., M.P., Director of the London and County Bank.

AUDITORS.

Henry M'L. Backler, Esq., Secretary of the European Gas Company (Limited).
James Le Geyt Daniell, Esq., 1, Devonport Street, Hyde Park.
SOLICITORS.—Messrs. Crosley and Burn, 34, Lombard Street.
ENGINEERS.—George Lowe, Esq., C.E., F.R.S.; J. Hodgson Jones, Esq., C.E., F.C.S.
BANKERS.—London and County Bank.
BROKERS.—Messrs. Crosley Brothers, 30, Cornhill; Alex. Morten, Esq., 11, Angel Court.
SECRETARY.—Edward P. Rowsell, Esq.
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This Company is established for the purpose of introducing Gas Lighting into various important cities and towns upon the islands, and upon, or within easy communication with, the shores of the Mediterranean.

The Company has arranged to purchase the existing gas-works at Valetta, the chief city of Malta, and will immediately extend the lighting to the populous district upon the opposite side of the great harbour, where the advantages of Gas are already fully appreciated.

The works, recently surveyed by the engineer, are in good condition, and to meet the greatly extending demand for gas, additional works, which will be included in the Company's purchase, are now being erected by the present proprietors.

The purchase is to be upon terms which the Directors believe will return at once a minimum dividend of 6 per cent., with the prospect of a considerable increase as the works extend.

Prospectus and forms of application for the remaining shares can be obtained from the Brokers of the Company, Messrs. CROSLEY BROTHERS, 30, Cornhill, and ALEX. MORTEN, Esq., 11, Angel Court, LONDON, E.C.

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118, Fenchurch Street, Aug. 1, 1859.

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Share List of Water Companies.

See "Share List of Gas Companies" for Gas and Water Companies.

No. of Shares issued.	Amount per Share.	Name of Company.	Amount paid up per Share.	Div. per Cent. per Annum.	Price per Share.
			£ s d	£ s d	£ s d
		Airdrie and Coatbridge			
588	1	Alexandria, Dumbarton	1 0 0		0 2 6
800	25	Ayr	25 0 0	5 0 0	25 0 0
		Banbury			
		Belper			
4800	25	Birmingham	25 0 0	6 0 0	37 17 6
4800	25	Do., new shares	22 10 0	6 0 0	33 15 0
		Blackburn			
		Boston			
		Brighton, Hove and Preston			
8000	25	Bristol	25 0 0	1 8 0	13¾ to 14½
		Do., preference			¼ to 1 pm.
		Broadstairs		4 0 0	
		Brompton and Gillingham			
5000	10	Bury and Radcliffe	10 0 0	2 0 0	10 0 0
1333	15	Do., preference shares	15 0 0	10 0 0	31 15 0
1333	18	Do., do.	6 0 0	10 0 0	14 0 0
2000	10	Do., do.	5 0 0	4 0 0	5 0 0
2000	10	Do., do.	1 0 0	4 0 0	5 0 0
		Cambridge			
1500	20	Cardiff	20 0 0	7 10 0	29 to 13
1500	10	Do.	10 0 0	7 10 0	14½ to 15
	10	Carlisle	10 0 0		13 to 14
		Cheltenham			
		Chepstow			
		Chester			
		Colchester			
175	20	Colne	20 0 0	5 0 0	28 0 0
		Consett			
		Dartford			
1250	20	Darwen	20 0 0	2 10 0	19 to 19½
1400	5	Deal	5 0 0	5 0 0	5 0 0
1481	25	Derby	25 0 0	7 10 0	50 0 0
400	50	Dudley	50 0 0	1 0 0	20 0 0
250	25	Do., pref. shares	25 0 0	4 10 0	
		Dukinfield			
11600	10	Dundee	10 0 0	5 0 0	11 0 0
2670	5	Dunfermline	5 0 0	2 0 0	2 10 0
	5	Durham	5 0 0		
7360	25	Edinburgh	25 0 0	5 0 0	28 0 0
7360	12½	Do., new shares	12 10 0	5 10 0	16 0 0
7218	6¼	Do., do. ¼ shares	6 5 0	5 0 0	7 0 0
5581	6¼	Do., do. do.	2 10 0	5 0 0	2 15 0
2000	25	Exeter	25 0 0	6 10 0	42 0 0
		Falmouth			
		Folkestone			
		Gosport			
	20	Gravesend and Milton	20 0 0	3 0 0	14 to 16
1000	5	Greenock (Shaw's Gravitation)	50 0 0	7 0 0	63 to 70
		Guiseley, n. Leeds			
		Harrowgate			
		Heywood			
1500	10	Kilmarnock	10 0 0	2 0 0	8 0 0
3200	25	Leicester	25 0 0	4 10 0	27 10 0
120	25	Lewes	25 0 0	6 0 0	26 0 0
		Limerick			
720	25	Lincoln	25 0 0	5 5 0	30 10 0
200	25	Do., new shares	25 0 0	4 5 0	26 0 0
		London Comps.—			
47000	10	Berlin	10 0 0		4½ to 4¾
	25	Chelsea	25 0 0	4 0 0	21 to 23
	25	Do., new shares	25 0 0	4 10 0	23½ to 24½
975000	Sk.	East London	Stock.	6 0 0	126 to 128
8000	50	Grand Junction	50 0 0	7 10 0	71 to 73
5840	25	Do., half shares	25 0 0	7 10 0	35 to 37
2310	100	Kent	100 0 0	5 0 0	100 to 102
1460	100	Lambeth	100 0 0	5 0 0	103 to 105
4120	50	Do., new shares	50 0 0	5 0 0	51½ to 53
		New River		441 6 8	£17,400
1560	100	New River London Bridge Annuities		per sh.	
			100 0 0	2 10 0	55 0 0
3036	100	Southwark and Vauxhall	100 0 0	6 0 0	118 to 120
3036	25	Do., do.	25 0 0	5 0 0	28 to 28¼
1265	100	Do., do.	10 0 0	5 0 0	
11064	61	West Middlesex	61 0 0	5 0 0 per sh.	103 to 105
		Liskeard			
		Maidstone			
		Margate			
		Matlock			
25000	Sk.	Newcastle-on-Tyne (Whittle Dean)	Stock.	5 0 0	102 0 0
9600	6¼	Do., do.	5 0 0	5 0 0	1 7 6
135	20	Newport, Carisbrooke	20 0 0	4 10 0	26 0 0
		Newport, Mon.			
	10	North Shields	10 0 0		9 to 10
		Norwich			
3600	50	Nottingham	50 0 0	5 0 0	60 10 0
8000	10	Portsmouth	10 0 0	5 0 0	11 7 6
400	5	Ramsey, Isle of Man	5 0 0		
1500	10	Ramsgate	10 0 0	6 0 0	13 to 13½
		Reading			
		Richmond, Surrey			
		Rochdale			
		St. Helen's			
		Scarborough			
		Sheffield			
		Shrewsbury			
		Southport			
11184	10	South Staffordshire	10 0 0		11 17 6
2354	10	Do.	5 0 0		
		Spalding			
21000	5	Staffordshire Potteries	5 0 0	6 0 0	7 5 0
		Stockport			
1800	12½	Stockton and Middlesborough	12 10 0	6 0 0	
800	12½	Do., A shares	12 10 0	6 0 0	
1591	12½	Do., B shares	7 0 0	6 0 0	
4000	10	Do., C preference	2 0 0	5 0 0	2¾ to 3
21800	5	Sunderland and South Shields	5 0 0	8 0 0	8 2 6
		Tolcross, Lanark			
		Wakefield			
		Warrington			
		Wellington, Salop			
		Weston-super-Mare			
		Weymouth			
		Winchester			
		Wirral, Cheshire			
20000	5	Wolverhampton New Co.	5 0 0	4 0 0	5 0 0
6000	10	York New Co.	10 0 0	5 0 0	11 12 6

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Abergavenny.	Bradford.	East Stonehouse.	Keighley.	Maidstone.	Poole.	Warwick.
Aberystwith.	Burnley.	Ely.	King's Lynn.	Manchester.	Port Glasgow.	West Cowes, Isle of Wight.
Alnwick.	Bury St. Edmund's.	Epsom, Surrey.	Kirkcaldy.	Merthyr Tydvil.	Preston.	Whitby.
Ashby-de-la-Zouch.	Carmarthen.	Fareham, Hants.	Knighton, Radnor.	Montrose.	Rotherham & Kimberworth, Yorkshire.	Whitehaven.
Ashton-under-Lyne.	Chorley.	Glasgow.	Lancaster.	Nantwich, Cheshire.	Rugby.	Wigan.
Baildon, Yorkshire.	Cork.	Gloucester.	Leamington.	Oldham.	Salford.	Windhill, Yorkshire.
Barnsley.	Coventry.	Halifax.	Leeds.	Oxford.	Salisbury.	Wirksworth.
Bath.	Croydon.	Hastings, East.	Leek.	Paisley.	Sheerness.	Worcester.
Belfast.	Darlington.	Haverfordwest.	Leith.	Pembroke.	Southampton.	—
Bilston.	Dartmouth.	Haworth, Yorkshire.	Liverpool.	Penzance.	Stirling.	
Birkenhead.	Dover.	Huddersfield.	Llanelly.	Perth.	Swansea.	
Bishop Auckland.	Dublin.	Hull.	Lytham.	Peterhead.		

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Average Weight of Cast-Iron Gas-Pipes, per Yard.

1¼ in.	2 in.	2½ in.	3 in.	4 in.	5 in.	6 in.	7 in.	8 in.	9 in.	10 in.	12 in.
16	21	28	33	51	70	89	107	126	149	177	208 lbs.

Retail Prices are 5 to 10 per cent. higher.	London.	Glasgow.	Newcastle.	Wales.	Yorkshire, Derbyshire, and Staffordsh.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Pig Iron, No. 1	3 5 0	2 10 0	2 12 6	3 0 0	3 5 0
1¼ and 2 inches Socket-Pipes	7 0 0	6 0 0	6 5 0	6 10 0	6 15 0
2½ and 3 „ „	6 10 0	5 10 0	5 15 0	6 0 0	6 5 0
4 and 5 „ „	6 0 0	5 0 0	5 5 0	5 10 0	5 15 0
6 in. and upwards „	5 15 0	4 15 0	5 0 0	5 5 0	5 10 0
Retorts, 1st fusion, hot blast	5 10 0	4 10 0	4 15 0	5 0 0	5 5 0
„ 2nd „ cold „	6 10 0	5 5 0	5 10 0	6 0 0	6 5 0
Tank Plates, ⅜ thick and above	6 0 0	5 0 0	5 5 0	5 10 0	5 10 0

WROUGHT-IRON TUBING,

Subject to 40 per cent. Discount.

	2 in.	1½ in.	1¼ in.	1 in.	¾ in.	½ in.
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
Patent Welded Tubes, from 2 to 12 ft., perft.	1 8	1 0	0 10	0 7	0 5	0 4½
„ „ „ 6 in. to 18 in., each	3 0	2 0	1 9	1 3	1 0	0 9
Connecting-Pieces, or Long Screws	3 6	2 3	2 0	1 6	1 2	0 11
Bends, Springs, and Elbows—wrought iron	3 9	2 3	1 9	1 0	0 10	0 8
Tees, wrought or cast	4 0	2 6	2 0	1 6	1 1	0 10
Crosses, wrought or cast	4 6	3 0	2 6	2 0	1 6	1 2
Iron Cocks	17 6	9 6	7 6	4 6	3 3	2 6
„ with brass plug	28 0	16 0	13 0	7 0	5 6	4 6
Diminishing Sockets, Caps, Plugs, and Plain Sockets [Nipples	1 3	0 9	0 8	0 6	0 5	0 4
	1 0	0 8	0 7	0 5	0 4	0 3
Syphons, 2 quart	15 0	14 0	13 6	13 0	12 0	—

COALS, per Ton.

Newcastle.—Unscreened.	6s. 9d.
Whitwell Primrose	
Medomsley, Eighton Moor, and Burnhope	7 0
Pelaw	7 3
New Pelton, Pearth, South Pelaw, Washington Hutton, and South Peareth	7 6
Pelton	7 9
Ramsay's Newcastle Cannel	16 0

Scotch Cannel.	
Boghead, at Leith	45s. 0d.
Kirkness, best	23 0
Capeldrae, 1st quality	20 0
„ 2nd „	12 6
Lesmahago, at Glasgow	25 0
„ „ Leith	27 6
Arniston	27 6
Wemyss	20 0
Knightswood	18 0
Pirnie	15 0

FREIGHTS.

Coastwise—Newcastle.—Per Ton.	*Foreign.—Per Keel.*
Chatham & Rochester	Boulogne and Calais
Cork	Barcelona
Dover	Bordeaux
Dublin	Cadiz
Exeter Quay	Copenhagen
Folkestone	Genoa
London (Pool)	Hamburg
Lowestoft & Yarmouth	Havre
Lynn	Leghorn
Portsmouth	Lisbon
Plymouth	Riga
Ramsgate & Margate	Rotterdam
Whitstable	Stettin
Weymouth	Trieste & Venice

The usual Freight-List has failed to arrive up to the time of going to press.

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Best Newcastle Fire-bricks	per 1000	50s. 0d. to 55s. 0d.	
Cliff's Fire-bricks, at Wortley	per 1000	55 6	
Ingham's Fire-bricks, at Wortley	„	55 0	
Fire-clay Retorts	per foot run,	5s. 6d. to 7 0	
Tough Cake Copper ... per ton	£102 10s.	Foreign Spelter	per ton £18 10 0
English Pig Lead	„ 21 0	English Block Tin	„ 124 0 0
Welch Bar Iron, in London	„ 6 10	Banca	„ 123 0 0
Tarred Rope Yarn	per cwt.	26s. 0d.	

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HOLMAN'S PATENT DOUBLE-ACTION PUMPS

Prove their general adaptation. They are adopted by

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For Pumping TAR, AMMONIACAL LIQUOR, WATER, WORT, and other fluids, their intrinsic excellence is too well known to need description.

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ALL KINDS OF HYDRAULIC AND STEAM MACHINERY FOR HOME USE OR EXPORT.

Cornish Boilers of superior construction, Steam-Cocks, Gauges, and Fittings.

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WOLVERHAMPTON RETORT WORKS.

ESTABLISHED **1840.**

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GAS ENGINEERS, AND MANUFACTURERS OF CLAY RETORTS,

AND FIRE GOODS IN GENERAL,

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Retort Mouthpieces, Bolts, Nuts, and every description of Wrought-Iron Work.

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GLOBE PATENT TUBE WORKS, WEDNESBURY,

Beg to draw the attention of Engineers and Managers of Gas Works to the superior quality of the Article they manufacture, both in respect of the iron employed, and the perfect manner in which it is welded; in proof of which they can refer to the testimonials of the most eminent Gas Engineers, and the experience of the principal of the large Gas Companies of the kingdom.

Orders promptly executed.

TO Mr. BENJAMIN WHITEHOUSE,
GASHOLDER MAKER,

WESTBROMWICH, NEAR BIRMINGHAM.

Sir,—I feel great pleasure in expressing my satisfaction at the manner in which you discharged your duties as CONTRACTOR for the TELESCOPIC GASHOLDER, 150 feet diameter and 60 feet deep, erected at this Company's Nine Elm Station in 1857. From that period to the present I have closely watched its working, and have never found the least defect either in workmanship or material.

During the recent heavy gales the Gasholder, although containing upwards of 1,000,000 cubic feet of Gas, showed no perceptible indications of its influence, but worked as freely and easily as usual.

RICHARD JONES.
Engineer to the London Gaslight Company.
Vauxhall, London, Nov. 9, 1859.

FIRE-CLAY RETORTS.
JOHN SWARBRICK,

MANUFACTURER OF PATENT COMPOSITION CLAY RETORTS,

FIRE BRICKS OF EVERY DESCRIPTION, SHAPE, AND SIZE, &c. &c.

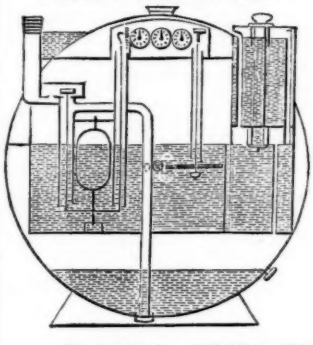
HIGHER EANAM, BLACKBURN, LANCASHIRE.

These RETORTS are generally used in the Gas-works of Preston, Accrington, Bury, Heywood, Middleton, Rochdale, Ratcliffe; the Mills of Messrs. Horrocks, Miller, and Co., Preston, &c. &c., and are unequalled in having afforded general satisfaction to those who have given these Retorts a trial.

To meet the increasing demand, the Works at Little Harwood have been greatly enlarged; and Gas Engineers who may favour with an Order may rely with confidence on their being promptly supplied with an article not to be surpassed in finish or durability.

PRICES MODERATE.

PATENT WET METER.



N. DEFRIES,

CONSULTING GAS ENGINEER,

Inventor and Patentee

OF

WET GAS-METERS,

WITH SELF-ADJUSTING WATER-LINE;

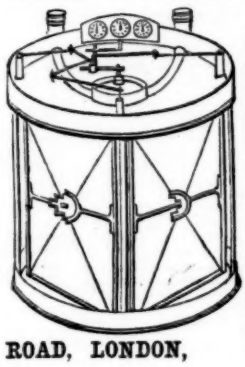
DRY METERS,

GAS-HEATING BATHS, OVENS, STOVES,

GAS FIRES with INDESTRUCTIBLE FUEL,

&c., &c.

PATENT DRY METER.



FACTORY: DIANA PLACE, FITZROY SQUARE. OFFICE: 406, EUSTON ROAD, LONDON,
Eight Doors from Factory.

Attempts having been made to construct Self-Supplying Apparatus to Wet Gas-Meters upon the Bird Fountain principle,—which, although unerring to supply water in the open atmosphere, has not wholly succeeded so as to be relied upon when enclosed in a Gas-tight Meter Case,—N. DEFRIES begs leave most respectfully to acquaint Gas Companies, and the Public in general, that he has constructed his PATENT WET GAS-METER upon a method entirely different, being founded on the well-known principle of the self-acting supply of the Oil Lamp, which has never been applied for the adjustment of the Meter Water-Line before, and which, by the admission of external air to a chamber sealed from Gas, will never fail to faithfully perform its required function. They are of the very best materials and workmanship, will stand more pressure than is required as the test for soundness by the New Act, are guaranteed to prevent surreptitious burning without detection, and will be kept in repair free of charge for seven years.

N. DEFRIES'S CELEBRATED DRY METERS,

of which more than 80,000 are in use in Palaces, Churches, Chapels, Royal Dockyards, Club Houses, Public Offices, and other Buildings throughout the Empire and Continent, which have done so much in checking surreptitious burning, and simplified the fitting up of Gas.

To remove any doubt of accuracy of measurement his Meter for 1500 lights, in use upwards of ten years at the Royal Italian Opera, until that Building was destroyed by Fire, was long afterwards dug out of the burnt ruins, then tested by the Chartered Gas Company in the presence of George Lowe, Esq., F.R.S., and other Chief Officers, and found inflexibly correct. Also, on the 9th of June, 1858, at the Western Gas-Works, his Meter for 150 lights, after considerable use, was doubted, and subjected to the most variable tests—from the full lighting to a single Jet—and in each case, as in other instances, accuracy was finely indicated.

As to durability, his two large Meters at the Thames Tunnel have been in use night and day for upwards of twelve years—one continuation of dark hours—subjected to the wear and tear of seventy-five years as compared with the ordinary business hours of using Gas above ground.

LORD REDESDALE'S SALE OF GAS BILL.

All Meters constructed by N. DEFRIES are guaranteed to pass the Provisions of the Standard.

No alteration has been necessary in the Meters he continues to supply to the Chartered, Imperial, City of London, Equitable, and other large Companies, his accustomed range of 1 per cent. over and under meeting all the desired requirements; whereas, by the New Act, a greater departure from accuracy—viz., 2 per cent. fast to 3 per cent. slow—is permitted.

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WILLINGTON QUAY,
NEAR NEWCASTLE-UPON-TYNE,
Manufacturer of Clay Retorts, Fire Bricks, and every description of Fire Clay Goods.

HARRIS and PEARSON,
PROPRIETORS OF
BEST CLASS-HOUSE POT AND CRUCIBLE CLAY.
MANUFACTURERS OF
FIRE BRICKS, GAS RETORTS, &C.
AMBLECOTE FIRE CLAY AND BRICK WORKS,
STOURBRIDGE.
Late in the occupation of I. and W. King.
Originally J. Pidcock, Esq.
NB. A quantity of best Clay Retorts in stock, viz.—
Circulars, 14 inches, 15 inches. 16 inches.
D's, 16×12, 15×14, 20×16, 16×18.

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(Established 1820,)
FIRE-BRICK AND TILE MERCHANT,
Wholesale and for Exportation,
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DEPÔT for STOURBRIDGE AND NEWCASTLE FIRE-BRICKS, LUMPS, TILES, and CLAY,
and every Article suitable for
GAS AND WATER WORKS.

GEORGE CUTLER & CO.,
GAS ENGINEERS, &c.,
London Gasholder and Boiler Works,
8, WHARF, WENLOCK ROAD, CITY ROAD, N.,
LONDON.

Rye, Nov. 12, 1860.
Dear Sirs,—I consider it incumbent on me to acquaint you that the alterations recently made on the Rye Gas-Works—viz., the addition of a NEWLY-IMPROVED WASHER, and other work for the Purification of Gas, executed by the experienced workmen under your able supervision—are perfectly satisfactory to the Company, and the Gas is now as pure as it can be made.
I am, dear Sirs, your obedient servant,
CHARLES THOMAS, Superintendent,
Rye Gas-Works.
Messrs. Cutler and Co.

Now ready,
VOL. IX. of the JOURNAL of GAS LIGHTING, WATER SUPPLY, and SANITARY IMPROVEMENT, for 1860, price 21s., bound in cloth and lettered. A few copies of Vols. II., III., IV., V., VI., VII., and VIII. are still on sale.
W. B. KING, 11, Bolt Court, Fleet Street.

Just Published, price 3s., by Post, 3s. 2d.,
THE CHEMISTRY OF GAS LIGHTING,
with an Appendix containing a description of the different processes for the Manufacture of Colouring Matters from Coal Tar.
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RETORT AND BOILER-SETTERS,
AND CONTRACTORS FOR GAS-WORKS IN GENERAL, FOR MATERIALS AND LABOUR, OR LABOUR ONLY.
OFFICE:
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Contractors at the Chartered Gas-Works, Curtain Road, and numerous Provincial Gas-Works.

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Manufacturer of
IRON TANKS for Gasholders, Railway Stations, &c.
GASHOLDERS.—Extensive premises at Gorton, solely for the manufacture of Gasholders, and other heavy Wrought-Iron Structures.
GAS APPARATUS.—W. M. has an extensive assortment of patterns for Purifiers from 4 feet to 15 feet square, also round ones from 4 feet to 10 feet diameter; Scrubbers, Condensers, Washers, Columns, Girders, and Tripod Patterns, suitable for Gasholders, from 10 feet to 150 feet diameter, either Single-lift or Telescope. Contractor for Gas Works of any Magnitude. Designs, Specifications, and Estimates furnished.
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IRON HOUSES, either for Dwellings, Manufactories, or Public Buildings.
PIPES and VALVES, for Gas and Water, from 2 inches to 48 inches bore.

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Manufacturers of all sizes of Cast-Iron Main Pipes, by an improved Patent, General Ironfounders, Gas Engineers, and Wrought-Iron Tube Makers.

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GAS ENGINEERS,
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Manufacturers of Gas Apparatus, Gasholders, Iron Tanks, Roofs, &c. &c.
Contractors for the Erection of Gas-Works throughout of any magnitude.
Plans, Specifications, and Estimates prepared.
Makers of the Combined, Condensing, and Purifying Apparatus (especially adapted for exportation), uniting simplicity and compactness with great efficiency and facility of working.
References given to Works where it is in operation.

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Station and Experimental Meters, Gas Pressure Registers, Gauges, Experimental Gasholders, Governors, Slide Valves, &c. &c.
W. and G. would respectfully call the attention of Gas Engineers and Managers to their Station-meters, having made and erected the largest in use at the present time, two of which may be seen at the Stockport and Liverpool Gas Works, on application to the respective Engineers.

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E. BAKER and CO.
(Contractors to Government).
24 WHARF, HARROW ROAD, PADDINGTON, W.
Every article manufactured at their own Works and Mines, Brierley Hill.
FIRE-BRICKS, Lumps, Squares, Tiles, and Gas Retorts of all dimensions.
CRUCIBLE and CEMENT CLAYS.
GARDEN EDGINGS, of various patterns.
BUFF and ORNAMENTAL TILES.
CLINKERS and STABLE PAVINGS, noted for hardness and durability, being perfectly non-absorbent.
Shipments on the shortest notice.

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Made of the most refractory Clay in the world, possessing extraordinary properties of contraction and expansion without cracking; having a true form, and perfect internal smoothness.

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Made up to five feet diameter. Vitrified Pipes, for conveying Water under pressure, made, laid, and guaranteed to stand a required pressure for six months. Every description of sanitary goods.

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Successors to the late firm of J. and W. KING,

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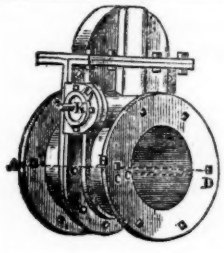
GAS-RETORTS, CLIFT'S PATENT GAS-OVENS and FIRE-BRICKS

OF ALL DESCRIPTIONS,

the superior quality of which will, they are confident, secure them further orders.



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keep always on stock their

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from 2 inches to 18 inches, price 11s. 6d. to 13s. 6d. per inch diameter

List of prices, with full dimensions of all sizes up to 27 inches, to be had on application.

These Valves are all proved to 30 lbs. on the square inch before leaving the works.

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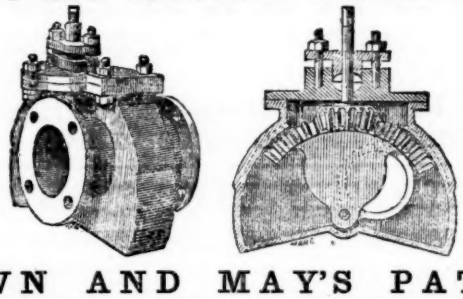

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Above 3-inch diameter, price 10s. per inch. Brass face, 6d. per inch extra.

Can be taken to pieces without being removed rom the line of Piping.

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GAS APPARATUS.

All Meters warranted to comply with the Act of Parliament.

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MANUFACTURERS OF GLASS CHANDELIERS, GLASS LUSTRES, TABLE GLASS, &c. &c.

ELEGANT CRYSTAL GLASS CHANDELIERS, for GAS, from £1 upwards (Made from "REGISTERED" DESIGNS), with GLASS BRANCHES, &c., suitable for DRAWING-ROOMS and BALL-ROOMS. The more extensive use of GAS in private dwellings has induced Messrs. OSLER to direct their particular attention to the manufacture of this class of articles—which, with a view to their general adoption, are offered at very moderate prices. Purchasers can select from a great variety of patterns, to which additions are being constantly made.

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Beg to inform Gas and Water Companies and the public, that they keep in stock in London all the CASTINGS in general use in Gas and Water Works, including best cold-blast Iron Retorts, Socket and Flange Pipes of all sizes, Bends, Branches, Syphons, Lamp Columns of various patterns, &c.

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Wrought and Cast Iron Pipes, Cast-Iron Retorts, and all kinds of Foundry Work necessary for Gas-Works. Fire-Bricks and Clay Retorts. Gas Coals of every description. Pig, Bar, and Plate Iron.

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WROUGHT-IRON Guides for Gas-HOLDERS,

when Trussed upon scientific principles, are more capable of resisting strains, in every direction, than Cast Columns of any form can be; and weigh only one-fifth as much as the latter. Designs and Working Drawings for Guides and Ties can be obtained of the Inventor, CHARLES DIXON, C.E., Chichester, SUSSEX.

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BEAL, WALKER, and CO., Coal and COKE MERCHANTS,

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Mr. PENNY having had a large experience in the construction, alteration, and management of Gas-Works, begs to inform the Directors of Gas Companies that he may be consulted on all matters appertaining thereto. He also manufactures Gasholders, Purifiers, and all the various apparatus used in Gas-Works, and keeps in stock Retorts and Mouthpieces, Socket-Pipes, Bends, Branches, T-pieces, &c. &c.

Plans, Specifications, and Estimates prepared.

Gas Stoves, Gas Baths, Gas Cooking APPARATUS,

warranted the best in England, at PHILLIPS'S, the original inventor and manufacturer, and general gas-fitter, &c., 55, Skinner Street, Snow Hill, LONDON, E.C.

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DIRECT-ACTING GAS-EXHAUSTERS,

supplied either with or without Steam-Engines and Boilers.

FOUR-WAY DIAPHRAGM VALVES,

one of which answers the purpose of THREE ordinary Valves, as applied to Purifiers, or in shutting off and passing Station-Meters, Governors, or other apparatus, while the Connecting-Pipes are also much simplified.

RETORT SETTINGS,

designed to be heated by Tar alone, and with a total absence of Smoke.

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BENJAMIN GIBBONS, Jun., DEEPDALE FIRE-CLAY & BRICK WORKS,

Near DUDLEY,

Manufacturer of every description of Fire-Bricks, Lumps, Quarries, Shields, Flue Covers, &c., to any size or shape required.

FIRE-CLAY RETORTS,

TO MODEL OR DRAWING.

B. G. begs to call the attention of Gas Companies to his Fire-Clay Retorts, which have been used with great satisfaction in some of the largest Gas-Works in the Metropolis and many Provincial Towns in England.

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WILLIAM INGHAM AND SONS,

WORTLEY FIRE-BRICK AND RETORT WORKS,

Near

Leeds.

W. INGHAM and SONS, having for many years been extensively engaged in the Manufacture of

RETORTS AND FIRE-BRICKS FROM THE CELEBRATED WORTLEY FIRE-CLAY,

beg to call especial attention to their RETORTS, which have for many seasons proved to be unsurpassed in quality by any in the Kingdom, their FREEDOM FROM CRACKS and the ADHESION OF CARBON rendering them worthy the attention of all parties interested in the making of Gas.

The Works are of such magnitude as to ensure the prompt execution of orders to any extent.

Estimates for Setting, or Bricklayers sent when required.

GAS OVENS IN SEGMENTS OF EQUAL QUALITY.

A large stock of Fire-Bricks, Fire-Clay, Terra Cotta, and Drain-Pipes of all sizes kept in London at CHRISTIE & CO.—Wharf, 64, Bankside, Southwark, where all particulars of Prices, &c., may be obtained.

N.B.—*Export orders continue to have prompt attention.*

LIVESEY FIRE-CLAY WORKS,

NEAR BLACKBURN, LANCASHIRE.

ORLANDO BROTHERS,

MANUFACTURER OF PATENT CLAY RETORTS,

AND EVERY DESCRIPTION OF

TUBULAR GLAZED SEWERAGE PIPES, BENDS, JUNCTIONS, ETC.

FIRE-BRICKS, TILES, BLOCKS, AND CHIMNEY-TOPS.

TRUSS'S PATENT ELASTIC PIPE-JOINT,

FOR GAS AND WATER-MAINS, AND STEAM PIPING,

Is the only PERFECT joint that has ever been constructed, and supplies the long-felt desideratum, by allowing for the expansion and contraction of metals, and for oscillation and deflection, without impairing the joint. Gas Companies will effect an incalculable saving in adopting it, as compared with the present imperfect mode of jointing.

Drawings, Estimates, and every particular, furnished on application to

THOMAS SEAVILLE TRUSS, C.E., 53, GRACECHURCH STREET, LONDON, E.C.

EDWARD COCKEY AND SONS'

PATENT GAS VALVES.

These Valves are formed of two Cast-Iron Cylinders, with segmental divisions, having the faces ground gas-tight—the upper Cylinder turning horizontally on the lower one.

The lower Cylinder has pipes from each division, communicating with the vessels to and from which the gas is to be passed. The upper Cylinder has corresponding divisions, so arranged as to direct the passage of gas to the different segmental divisions in the lower part, and when it is turned on the face of the lower one, to alter the flow of gas from one vessel to another.

Each Valve has an index-plate provided, which is to be attached to the floor, and a pointer on the cover of the Valve shows which way it is turned. Thus, the Manager of the Works can at once see in which direction the gas is passing.

There are about fifty of these Valves now in use, of sizes varying from two to twelve inches, and they are giving great satisfaction. Amongst the Works at which they are fixed, the following may be mentioned:—

BASINGSTOKE.	CANTERBURY.	FROME.	RYDE.
BLANDFORD.	ENNISCORTHY.	GODALMING.	SANDWICH.
CHELTENHAM.	ELGIN.	NEWPORT.	WARMINSTER.

They are in course of erection at other important Works.

IRON WORKS, FROME SELWOOD.

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ALSO MANUFACTURE

PURIFIERS, SCRUBBERS, CONDENSERS, AND OTHER IMPROVED GAS APPARATUS,

HAVING PATTERNS SUITABLE FOR GAS-WORKS OF DIFFERENT SIZES.

WILLIAM SUGG,

MANUFACTURER OF

PATENT DRY AND WATER GAS-METERS, TEST GASHOLDERS, AND APPARATUS,

"EVANS'S" PHOTOMETERS,

Experimental Meters, Minute Clocks, &c., Station Meters and Governors,

STREET-LAMP GOVERNORS AND LAVA BURNERS,

19 and 20, MARSHAM STREET, WESTMINSTER.

CROSLEY & GOLDSMITH'S

PATENT SELF-ADJUSTING & COMPENSATING GAS-METERS

CANNOT BE OVER OR UNDERCHARGED WITH WATER,

and they consequently register the quantity of Gas consumed with greater accuracy than Meters in which the Water-Line is variable.

MANUFACTURED BY

CROSLEY & CO.,

GAS-METER MANUFACTURERS,

103, SOUTHWARK BRIDGE ROAD, LONDON, S.E.

N.B. The Patent Self-Adjusting and Compensating Apparatus may be applied to the ordinary Meter.

Manufacturers of LOWE'S PATENT MOTIVE-POWER METER, for situations where there is an inadequacy of pressure to supply the special requirements of certain consumers in low grounds during the day or night.

Also, Manufacturers of EXPERIMENT METERS, GOVERNORS, MINUTE-CLOCKS, PHOTOMETERS, &c., &c., similar to those used by Mr. King, of Liverpool.

CROSLEY & CO. are also prepared to supply Gas Companies and others with

DUPLICATES of Mr. KING'S CUBIC FOOT TRANSFERRER,

similar to that manufactured by them, and verified by the ASTRONOMER ROYAL, and PROFESSOR MILLER, of Cambridge, on behalf of the Government, which was deposited by C. & Co. in the Office of the COMPTROLLER-GENERAL of the EXCHEQUER before Nov. 13, 1859, in compliance with the "Act for Regulating Measures used in Sales of Gas." They also supply

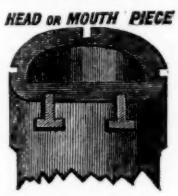
TEST GASHOLDERS,

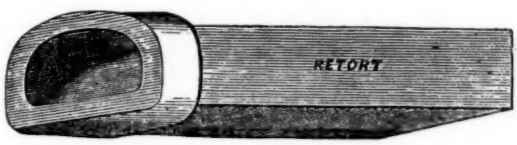
Graduated by the Standard Cubic Foot.

C. and Co. are the only house in the trade which has for years manufactured Meters according to the standard measure set forth in the 2nd Section of the "Sale of Gas Act," and which also comply with the rules laid down in the Section for testing meters. Purchasers of C. and Co.'s Meters may therefore be secured against any additional expenses being incurred in order to adapt their Meters to the requirements of the new Act.

KING BROTHERS,

STOURBRIDGE FIRE-BRICK AND RETORT WORKS.



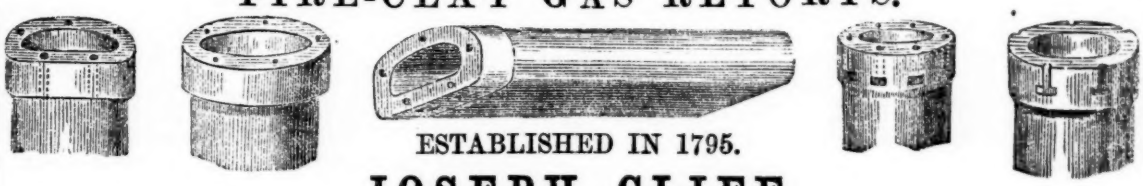


KING BROTHERS beg especially to call the attention of Gas Companies to the superiority of their Retorts, which are made from the celebrated STOURBRIDGE FIRE-CLAY. Mr. King has patented a Kiln for burning Retorts, by which Patent all Cold Air is excluded from the Kiln while burning, thus rendering them FREE FROM CRACKS AND CORRECT IN FORM. By great care in Manufacturing, combined with the advantages in burning, a VERY SMOOTH SURFACE is obtained, rendering them less liable to carbonize.

Retort Ovens, Fire-Bricks, Guards, Saddles, Rabbitted Burs, Flues, and Quarries, are all Manufactured of the same quality of Clay.

Every Retort and Brick is branded "King Brothers, Stourbridge."

FIRE-CLAY GAS RETORTS.



ESTABLISHED IN 1795.

JOSEPH CLIFF,

WORTLEY FIRE-BRICK WORKS, near LEEDS.

THESE RETORTS are unrivalled in excellence, being the BEST FINISHED INTERNALLY, and THE MOST CORRECT IN FORM, of any in the Kingdom. From the peculiar composition used in working up the face of the material, they are rendered unusually smooth, close, and FREE FROM SURFACE CRACKS, thus, in a great measure, preventing leakage and the adhesion of carbon to their interior surface.

To meet the yearly increasing demand of UPWARDS OF THIRTY SEASONS and to carry out the late improvements in the manufacture, the Premises have been re-erected and much enlarged, and Engineers may rely WITH CONFIDENCE on their orders being completed with a greater regard to despatch than by any other House.

THE WORKS ARE WELL SITUATED

For EXPORT from the Ports of { **LONDON, LIVERPOOL, HULL, MIDDLESBRO', HARTLEPOOL, and STOCKTON.**

FIRE-BRICKS, LUMPS, GUARDS, TILES, AND CLAY OF THE SAME QUALITY.

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SALE OF GAS ACT.

MESSRS. CROLL, RAIT, AND CO.,

Manufacturers of Croll's Patent Improved

DRY GAS-METER,

Also Manufacture and Supply

TEST GAS-HOLDERS,

And other Apparatus required by the Inspectors appointed in pursuance of the above Act.

Application for particulars to be made to the Factory,

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ALEXANDER WRIGHT,

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MANUFACTURER OF

CONSUMERS' COMPENSATING & NON-COMPENSATING WET GAS-METERS,

Of the best material and workmanship, carefully adjusted to meet the requirements of the SALES OF GAS ACT.

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WRIGHT'S REGISTERING PRESSURE-GAUGE, EXHAUSTER REGISTER, & REGULATOR;

STANDARD TEST GASHOLDERS;

Consumers' Governors; Inspectors' Pocket, King's, and all other kinds of Pressure-Gauges; Thermometers for Condensers, Pressure Registers, &c., &c.

EXPERIMENTAL TESTING APPARATUS,

Employed by the best experimenters in this country and on the continent, and by the Gas Testers in the London districts.

PHOTOMETERS, SPECIFIC GRAVITY APPARATUS, BI-SULPHURET OF CARBON TEST, THOMPSON'S BROMINE AND HEATING POWER OF FUEL TESTS, IMPROVED ALKALIMETER, EXPERIMENTAL METERS AND GOVERNORS, MINUTE CLOCKS, &c., &c.

"Analysis of Gas for Practical Men," by A. WRIGHT, M. Inst. C.E., post-free for 13 Stamps. PRICE-LISTS ON APPLICATION.

JAMES MEACOCK,

PATENT DRY AND WET GAS-METER MANUFACTURER,

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ESTABLISHED 1836.

J. M. invites attention to his Improvements in **EXPERIMENTAL WET GAS-METERS**, by which he renders impossible any Leakage from the Stuffing-Box.

These **METERS** are **GUARANTEED** to meet all the Requirements of the **SALE OF GAS ACT**

GOVERNORS, STATION-METERS, PHOTOMETERS,

EXPERIMENTAL TESTING GASHOLDERS, HIGH-PRESSURE GAUGES,

AND ALL APPARATUS IN USE AT THE GAS MANUFACTORY.

D. HULETT and CO., 55 and 56, HIGH HOLBORN, LONDON,

PATENTEES and MANUFACTURERS of the ONLY GOOD MERCURIAL GAS REGULATOR,

invite the attention of Gas Companies and the Trade generally to their Improved GAS-METERS, which they warrant equal to any in Quality, Workmanship, and Simplicity of Construction, and the only Meters from which Gas cannot be obtained without being duly registered.

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DOUBLE CONE, ALBERT, SHADOWLESS, & EVERY DESCRIPTION OF BURNER, UNION JETS, BATSWINGS, ETC.;

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GAS-STOVES, and every article connected with Gas Apparatus.

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